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Employee Representation in Paper Mill Operation?

A Survey of the Employee Council Idea as It Applies to the Industry

By ROBERT LINDGREN

JUST to what extent paper mill employees should be permitted to organize councils as a means of co-operating with the management in certain phases of operation is a problem in which mill owners, as large employers of skilled labor, are taking a growing interest. The existence of such councils is not what might be called common in the trade but they have been tried out, with some success, in certain quarters.

Other industries have gone much further in this direction. Yet, a study of the paper industry and a careful consideration of various plans of employee co-operative organizations would indicate that a proper plan, adapted to mill needs, would go far to benefit both employee and employer.

It has been customary to confuse employee councils with bolshevism and socialistic tendencies on the part of wage earners with the result that paper mill owners, who have not a clear understanding of the idea involved, have fought shy of encouraging any such movement. As a matter of fact, the most successful employee councils in the United States are strictly of a mutual character and are strictly limited in their scope. They are designed to achieve harmony between employer and employee and to benefit the former as well as the latter. They have in many cases which have come under the observation of the writer, actually nullified any socialistic tendencies or unrest that might otherwise exist by clearing up the atmosphere in the mill and keeping it clear. The truth is well worth the mill owner's attention.

Paper Workers' Industrial Councils

A study of workers' industrial councils now in operation reveals that their primary purposes are as follows:

1—To offer a means of direct contact between employer and employee.

2—To prevent misunderstandings that lead to labor unrest.

3—To make recreation spontaneous and not paternalistic.

4—To inspire confidence between employer and employee.

Will they do these things? Some experiences of other plants are given in this article.

The management of any unit in the industry will be interested, first and all, in the more general effects of the industrial employee council idea.

(a) What effects does it have, if any, on the wage question?

(b) To what are its activities limited?

(c) How shall it be organized?

It has been found, after a careful study of a dozen or so employee council plans, that the constitution of such an association can be framed so as to hold the actions of the employee body within the limitations designed for it. In the earlier developments of the idea there was much confusion in the minds of workers as to just what degree of participation they were entitled to in plant management, and this quite naturally brought about a number of failures in the undertakings. However, the air has been cleared and it is now commonly understood in the industry that employee industrial councils, while they are designed to offer employee participation in management, are, in fact,

merely a representation body to clear up grievances and to keep in contact with the management on matters pertaining to their rates and welfare.

Contact Valuable

It has been found in many of our larger units that difficulties between employees and management are due very often to a total misunderstanding which, in turn, is the result of having no organized method of contact and exchange of views on matters which are obviously mutual. It is to bring about this organized method of contact that employee councils have been formed; in many places the results have been far ahead of all expectations.

The purposes of a successful council plan are clearly expressed in the preamble to the constitution of one organization that has come under the writer's attention. It reads as follows:

"The employees and management undertake, by the adoption of an industrial council, to establish common relations upon a definite and durable basis of mutual understanding and confidence. To this end, the employees shall have equal representation with the management in consideration of all questions of policy relating to the working conditions, health, safety, hours of labor, compensation, recreation and similar matters of mutual interest."

Investigations have proved that unless the employees of any unit clearly desire to organize a council and display enthusiasm for it, it is not likely to be a success. It is the practice of employers generally to place the burden of organization upon the employees themselves and permit them to work out the plan, subject to the final approval and acceptance of the management.

One employer declared that his 2,000 workers turned down a proposition made by him two years before they proceeded to organize on their own initiative. In many plants in the industry, personnel agents have been delegated to arouse interest in the idea and to start the ball rolling. He is in a strong position to do this because of his contact with help and his personal knowledge of sentiment among the people employed.

It has been found customary to form a committee of six aggressive employees to discuss an employees' council plan with the management, the first steps being, as a rule, worked out with the general superintendent or the personnel agent. The employees then are encouraged to present some such council plan for the acceptance or rejection by the management.

Getting Workers' Viewpoint

Every executive in the trade realizes fully the difficulties of always keeping in touch with the employees' viewpoint concerning matters which are of direct personal interest to them as a body. It has been found that the lack of any such organized channel of communication has been the cause of frequent disturbances, strikes and reductions in production. And this brings up the question, paramount, we think, as to what effect a council may have, if any, on the wage question. I cannot do better than to quote the words of Mr. M. R. Lott, of Brooklyn, New York, an industrialist who has studied the council proposition closely in his own plant. Concerning the wage problem and the council, Mr. Lott says:

"It is the policy of the Company to maintain high wage scales—to pay for services rendered so that the matter has not occupied much time among the considerations of the association. It has entered to the extent of six per cent in their discussions, chiefly in connection with three occasions. Two of these occasions involved general increases proposed by the employees and one a decrease proposed by the Company.

"In one instance, the Company changed the wage scale upwards and on another, the revision of scales was downward though the working hours were increased from 44 to 48 hours which allowed the same weekly earnings to prevail. The third occasion for the discussion of wage scales came in the late Spring of 1923. As general business of other companies began to boom and wage increases were being noted daily in the papers, it was only natural that our employees should raise the question as to whether or not they might also be given a general increase in wages and have their hours of work reduced from 48 to 44 per week. Therefore, a petition was submitted at a regular monthly meeting of the Employees Council that a 15 per cent increase in wages together with a reduction in hours, be requested from the Company.

"Instead of passing the petition along to the management, however, the employees' representatives discussed the matter among themselves and as the consensus of opinion was that they should not make such a request without justification, it was decided to appoint a committee of four to go into the matter and report back their findings to the Council. Upon request to the Company, the committee was supplied with such information as they desired. * * * The upshoot was that the Council decided there was no justification for the request and the petition was tabled."

The Council expressed the belief that a reduction in the number of labor hours per week would have the effect of curtailing business and thus "act as a boomerang on the workers."

In the matter of improving conditions of labor the Council idea has been of great value to many plants and it would seem that while the wage question frequently is brought up, the Council offers a peculiar machinery for securing adjustments to the mutual advantage of all parties concerned.

Above all, its staunchest advocates hold that it inspires confidence as a basis for justice in industrial relationship. In addition, the Council has been found to make for spontaneous effort in recreation in the plants where it has been adopted, which means that

employees are freed from a paternalism which they often dislike in matters of this sort when initiated and supervised by the management.

The employees' industrial council goes further than the ordinary mutual benefit organizations which exist in nearly every one of our larger plants. Yet, the council idea has been hitched up easily with the mutual benefit association to great advantage in many instances. It has been found that where a mutual benefit association already is in operation, the machinery exists for a council. But it is not considered necessary that the same officials head the council that head the society. As a matter of fact, many employers keep the two groups entirely separate and for reason that will be outlined later.

While, as mentioned before, recreational enterprises may come under the council, only insofar as they may require the assent of the management. The council cabinet represents the society and the council in negotiations with the management.

An examination of the minutes of several council and management conferences reveals the fact that the majority of matters brought up for discussion and adjustment follow along rather narrow lines.

Questions are roughly divided into two broad groups:

(a) Questions having to do with sanitation, personal welfare in workrooms and restrooms, sanitation.

(b) Questions which concern labor functions of groups, safety of operatives, production matters.

The largest percentage of issues involve the first group and these have to do with ventilation, lighting, heating, health protection and such factors. Wage discussions are in the extreme minority probably for the reason that this problem doesn't present itself so often and is not so often subject to discussion. Just how should a council be constituted?

Following is an outline of the most approved principles of an industrial council development. It has been found that the improper organization of a council can defeat the very aims that it is designed to attain. And while there are many variations in method, the writer has taken the best features from several and combined them into a practical working plan.

Principles of a Council Development

Just what is the best method of employee council organization for the paper mill depends in some degree upon the size of the mill. It has been found that a council that is truly representative of each department is absolutely essential if harmony is to prevail.

One plan that would seem to work out well in the industry is the election of one representative for each 25 or 35 employees, depending upon the total number employed.

One concern's employees have what is called a "cabinet" which stands above the council and which is the direct point of contact with the management on matters that cannot be well handled by the council as a whole.

This cabinet can consist of an equal number of representatives from the employees and representatives of the management. The council usually meets monthly and on company time to discuss the matters that have come up for the attention of the management. The cabinet members are elected by popular vote on the part of the councillors.

Grievances that come up in the mill, whether they concern better working conditions or increased wages are discussed by the council which may be petitioned or memorialized by the employee body. They are then put before the general superintendent or other designated executive who either rejects or accepts their suggestions. In certain cases, pressure on the part of the council can bring about a consideration by the cabinet of matters in dispute.

Above, in brief, is the skeleton plan for a paper mill council.

The experience of most concerns who have accepted the industrial council as a management policy has been that the class of grievances which the workers bring to the cabinet meetings are nearly always suitable under the constitution of the council. That is, the grievances consist of complaints which rightfully come under the direction of the superintendent, but the viewpoint of the employee in regard to these laxities or deficiencies is important for the management to know. The writer knows of a case in point.

It was found two winters ago that a department in this case was improperly heated and that a lot of sickness was the result. At this time there was no council in operation in this plant. The word went around that the management was trying to save on coal at the cost of the workers' health. A lot of resentment was the result.

After a lot of trouble, the matter was settled and a new heating plant put in. Last winter the same condition prevailed—employees complained of being cold. In a week the matter was up before the cabinet and measures to improve the heating system a second time were taken. There was no hard feeling.

The matter was discussed, the management agreed that the heating system was still inadequate and there has been no trouble at all this winter. Previously, the employees had been left to grumble and complain among themselves for several weeks because there was no machinery by which they could register their complaint.

There is another angle of importance to this council plan. The management finds it possible to secure prompt and effective motion in respect to their own complaints through the agency of the cabinet and the council. Where production is sinking or materials are being wasted unduly, the management has the right to file a complaint with the council.

This, of course, only applies to general inefficiencies and does not, as a rule, take in any remissions on the

part of a single worker or two whose responsibility is directly to his foreman. Thus, the machinery of the council works in favor of both parties and one may use it as effectively as the other.

Special Meetings Help

It is usually part of the plan to permit the calling of special council and cabinet meetings for the discussion of emergency measures which come up from time to time. These special meetings may be called by either party.

Thus, in an hour, a situation that might otherwise demoralize a whole room full of trained help can be settled, leaving everybody with the feeling that they are getting a square deal.

Several superintendents have gone on record to the effect that the council plan, if it is strictly limited in its goal, will do more to inspire and retain a feeling of confidence in the management than any other one thing can do.

They say that where employees are given a voice in affairs which concern them personally and every day that they take greater pride in their work and that a high production rate has been noticed. Every superintendent and foreman is quite well aware of the fact that there are certain classes of disputes that arise which cannot be properly settled on any strictly administrative basis. It is hard to define these things now but they are easily recognized when they come up and cause trouble. And there is no reason why the council idea should in the least interfere with the ordinary managerial routine. It hasn't in the plants I have visited.

It hasn't undermined discipline, except in one instance I know of, where too much power was vested in the council constitution as granted to the employees in one of the smaller plants. The employees in this case were of the belief that they had been enlisted to direct the policies of the company instead of to promote their own happiness and welfare.

Where the council plan has been most successful, it is found that employees are eager to be elected to the councils and to the cabinets and that they take pride in fulfilling their duties as electors. Their meetings are orderly and surprisingly business like. The "hot head" is squelched on the spot. Mischief makers, which we find plentiful, haven't got a chance. Because the employee knows that it can speak quickly and effectively to a just management, confidence has been inspired.

We feel free to say that there are leaders in the industry who are adverse to the council idea, some of them who have tried it; but they are not in the majority. Whatever may be said against this form of management, it is gaining headway in American industry generally. No social enterprise of this sort is perfect. There are even industries which do not permit of a successful council scheme because of the mixed races they employ and the failure to get the necessary spirit and co-operation roused.

But for all that, the idea is spreading, slowly, but surely. A little more experience will cause it to spread even further. There was, at one time, antagonism on the part of owners to employee mutual benefit organizations and of organized recreational activities, on the ground that it "spoiled" operatives.

Now, every big mill in the industry has some form of recreational facilities in operation and some even cafeterias where food is sold at cost.

Define Limitations of Power

Those most experienced in the work are free to say that any plan for industrial councils should first of all clearly define just what matters are to be adjusted by mutual conferences and what are not. Once this standard is set, there is little difficulty. As mentioned at the beginning of this article, a great many leaders in the industry fear that any council that might be organized would spend its time in wage disputes and would constantly rouse questions that should be settled through other channels.

Yet, with only 6 per cent of the discussion in one of the largest plants being devoted to wage problems over the year and 94 per cent to other matters, most of which concerned not only the employees' welfare but that of the management, there should be no fear in that regard.

Co-operation is getting a firm foothold in the United States, and it is being more clearly understood by capital every day. But it has been long misunderstood. It is a thing that the employer can profit by as well as his helpers. It will solve many factory problems if properly directed.

Cause of Turbine Vibration

AN interesting instance has been brought to my attention where serious steam turbine vibration was caused by an accumulation of scale on the rotor.

Scale formed to a uniform depth all over one end of the rotor and as long as it maintained its uniformity the turbine ran smoothly. But one day some of the scale chipped off on one side of the shaft which was enough to throw the rotor out of balance. This caused so much vibration that it was considered serious enough to cause the turbine to be shut down. A careful search was made for the cause of the vibration. After all of the scale was cleaned off of the end of the rotor the turbine ran smoothly once more.—Shaphorst.

The sum of $12,000.00 was recently paid for the newspaper concession on a Chicago "loop" street intersection. The material assets involved in this transaction invoiced as $25—four small wooden benches on which to pile papers. The balance was chargeable to "good will."

The Paper Industry, 1860-1870

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THE paper and pulp industry, which today ranks nineteenth among the industries of the country in value of total output, passed through a revolutionary stage during the Civil War. Important changes took place in the industry which were permanent. A complete or almost complete change in the raw material used in a particular industry occurs only occasionally, but during this decade, 1860-1870, wood displaced almost completely, cotton products as the raw material for the manufacture of paper. The close connection of the paper industry with cotton was broken, and a new industry created, that of making wood pulp. This new raw material was not only cheaper but also released cotton for other uses demanded by the exigencies of war. The blockade which was effective in preventing the sale of cotton in the North was the second factor which made this change essential. The paper industry in 1860 included the manufacture of print paper, writing paper, straw board, colored paper, bank note paper, and wall paper. Of these 253,778,240 pounds were made, with a value of $23,500,000.[1] To these changes in the industry must be added the normal increase in demand of the people of the country for books and paper, and the use of paper for many new purposes. The United States was at that time and still is, the greatest consumer of paper in the world. Complete freedom of the press and of speech permitted newspapers and periodicals to circulate without restraint and the average American demanded his books and newspapers to a far greater extent than did the European.

Professor Crawford's historical narrative of the changes which took place in the paper industry during the bellum period of our nation reads like a fascinating romance, and we feel sure that it will be appreciated by the readers of this magazine. Owing to it being of some length, the story will be published in two issues; the concluding chapter, dealing with the last half of the decade, will be published in the May number.—Editor.

Domestic cotton rags comprised seventy per cent of the raw material used in paper making. Foreign importations and other materials made up the remaining twenty-three per cent. These cotton rags were to a large extent the by-products of the cotton mills, a small percentage coming from the collection of rags and worn out clothing.[2]

The making of paper began in the Colonies as early as 1690, when a mill was built near Germantown, Pa. Other mills were erected in the Middle States and in 1769 the three provinces of Pennsylvania, New Jersey, and Delaware had forty mills. The first mill in New England was started near Boston in 1728, and others were soon built in the neighboring colonies.[3]

The report of Secretary Hamilton to Congress in 1791 on the subject of domestic manufactures included the paper industry among those that "had grown up and flourished with a rapidity which surprises . . . . affording an encouraging assurance of success in the future attempts."[4]

The first mill west of the Alleghanies was started in 1796 near Pittsburg. The Census of 1810 reported 179 mills in seventeen states, exclusive of Massachusetts, where the census was not complete.[5] The value of the product was $1,689,718.[6] Ten years later 108 mills were reported with a product valued at about $3,000,000.

Introduction of Fourdrinier Machine

In 1827 the Fourdrinier machine was imported from England, and introduced into the United States at Saugerties, New York. Other authorities state that the first Fourdrinier machine was introduced into the United States at Springfield, Massachusetts, in 1825. This machine, which made paper of indefinite length and at that time of relatively narrow width, was improved and by 1850 was in use in all but two mills of the country.[7] The official returns in 1840 showed 426 mills with a product of $5,641,499, while in 1850 the number of mills had increased to 483 and the total product had doubled.[8]

The United States was in 1860 the largest producer and consumer of paper in the world. In the middle of the previous decade we produced more paper than either France or Great Britain.[9] Six hundred mills in this country made paper to the value of $23,500,000[10] and little was exported as the domestic demand

[1] Census of 1860, *Manufactures*, p. CXXI. 131,508,000 lbs. of print paper. 22,218,000 lbs. of writing paper. 1,944,000 lbs. of colored paper. 33,379 tons of wrapping paper. 8,150 tons of straw board. 3,097 tons of wall paper.

[2] Joel Munsell, *A Chronology of Paper Making*, (Albany, 1870), p. 168.

[3] Census of 1860, *Manufactures*, p. CXXIII-CXXIV.

[4] American State Papers, *Finance*, I, p. 132.

[5] Census of 1810, *Manufactures*, compiled.

[6] Census of 1860, *Manufactures*, p. CXXV.

[7] Census of 1860, *Manufactures*, p. CXXVII.
Chas. I. Davis, *The Manufacture of Paper* (Philadelphia, 1886), p. 60.

[8] Census of 1870, *Industry and Wealth*, p. 407.

[9] Census of 1860, *Manufactures*, p. CXXIII.

[10] Census of 1870, *Industry and Wealth*, p. 403.

GOODE'S SERIES OF BASE MAPS AND GRAPHS. THE UNITED STATES OF AMERICA, ON THE CONIC PROJECTION. NO. 110

For class use in Geography, History, Civics, Economics, etc. Prepared by J. Paul Goode. Published by The University of Chicago Press, Chicago, Ill.
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consumed nearly the entire supply. Imports were negligible, prices being lower in the United States than in Europe. The importation was limited to fancy paper and parchment.

The industry was centralized in 1860 as was the case with other manufactures; New England and the Middle States producing ninety per cent of the paper made in this country. This location was caused by the fact that the center of population was in the East as were the cotton mills, the source of raw materials for paper. The labor supply for the paper industry which centered in New England was an important factor in the location of mills there. In many families grandfather, father, and son, had been paper makers and they were so deeply rooted in the New England soil that the industry settled about them. The water power available from the short swift rivers was another factor which determined the location of the industry in that section. No figures are available for 1860, but in 1870, 78.2 per cent of the paper mills were operated by water power and 21.7 per cent by steam. Undoubtedly, in 1860, a larger per cent were run by water than at the close of the decade. The South and West were not factors in the paper industry, and the South during the War felt very keenly the need for further industrial expansion along this line. That development did not occur until recently. The West made its first attempts to manufacture pulp and paper during the period under discussion, but their efforts were only a part of a general industrial expansion.

The country was recovering in 1860 from a panic which had affected industrial concerns very seriously and the paper industry had not escaped the general depression. The market was largely overstocked, and in March, 1861, the manufacturers combined to reduce the output one-third for three months.[11]

With the outbreak of war the demand for books was lessened and the southern market for all kinds of paper was closed. The South had produced only a small percentage of the amount needed and prices fell as the supply increased.[12] Paper was never so cheap as during the first year of the war. The low price had a depressing effect upon the industry and tended to check production. Stocks on hand were reduced, and the manufacturers were not prepared for the time when their supply of raw materials would be greatly reduced and almost disappear from the market. The supply was sufficient to last well into 1862, but the tightening blockade reduced the supply by cutting off the supply of cotton, and in the last three months of 1862 the lack of paper stock was felt and the danger of an absolute shortage was regarded as a possibility. Prices began to go up, and the papermakers were quick to take advantage of the opportunity and to force them up further. The Writing Paper Manufacturers' Association organized in June, 1861, met in January, 1862, and reduced production 50 per cent, at the same time increasing prices 25-40 per cent.[13] At a subsequent meeting in July, 1862, another increase was made to provide for the taxes imposed by the Federal Government on materials and manufactured products.[14]

Formation of Paper Makers' Association

The Papermakers' Association of the United States was organized in September, 1862, and the control was placed in the hands of nine men, who had the right to fix prices, to regulate time of working in plants, and to control generally the paper business.[15] The purpose of this organization was to keep the industry alive during the period of depression. Prices were at once increased, and paper that had sold at 9 cents per pound was advanced to 22 cents.

In 1861, the tariff on imports of paper was 30 per cent ad valorem, at practically the same level as in 1846. Paper to be used exclusively for books and newspapers was at the same rate. By the Act of July, 1862, the duty on all varieties of paper was raised to 35 per cent, and the duty on raw materials, such as alum, soda and bleaching powder, was trebled.[16] The increase in the tariff was one more element to bring about high prices, and the cry of monopoly was raised in Congress. The increased prices and the organization of the papermakers tended to give the impression that collusion existed.[17] Pressure was later brought to bear on Congress, and the duty on paper used for books and newspapers was reduced to 20 per cent.

After the depression caused by the declaration of hostilities, business revived and the papermakers experienced a demand, which was not much affected by the loss of business in the South. The paper consuming world gradually realized that the northern blockade was becoming effective and that very little cotton was available for paper stock. Cotton goods were scarce and the supply of old rags decreased, as people in general wore out their cotton clothes or refused to sell them for rags. Papermakers and consumers alike were alarmed.[18] Abroad similar conditions existed, as the shortage of cotton affected the whole world. The cost of all raw materials used in papermaking had greatly increased, including alum, bleaching powder, coal and machinery for the mills, and the cost of labor. Rise in prices was to some extent justifiable. A period of high prices meant

[11] *Paper Making as Conducted in Western Massachusetts, Mass.*
Miscel. Pamphlets, Vol. 8, (Springfield, Mass., 1874), p. 12.
[12] *Boston Commercial Bulletin*, December 6, 1862.
[13] *Commercial Bulletin*, November 18, 1862. Munsell, p. 158.
[14] Ibid., July 12, 1862.
The National Tax of three per cent ad valorem was levied on manufactured paper.
[15] *Commercial Bulletin*, July 12, 1862. Munsell, p. 158.
[16] *The Paper Question*, Letters to the Hon. Schuyler Colfax (Philadelphia, 1864), in Rebellion Pamphlets, Vol. 6, p. 4.
Special Commissioner Internal Revenue, *Report*, 1869, p. CVI.
[17] *The Paper Question*, p. 6.
[18] *The Paper Question*, p. 6.

activity, and old mills were rebuilt, new ones added and new materials utilized. The industry was stimulated to action, and in many cases the profits were very good.[19]

Paper Prices Begin to Rise

The high prices for paper were felt by the newspapers of the country, who were the largest users. The papers had the alternative of increasing subscription and advertising rates, of reducing size, or of suspending publication. The New York papers were especially vindictive toward the "paper trust," as they called it. They charged the Papermakers' Association with the crushing of small dealers in order to make prices higher.[20] The Times called the trust "A powerful engine of oppression, who has doubled and trebled the price of paper."[21] Newspapers of the twentieth century have applied much the same terms to the paper manufacturers. The New York Tribune doubted in October, 1861, that a single paper in the city had paid expenses during the fall of that year.[22] The loss of advertising because of the outbreak of war had been a serious factor, and many small papers suspended publication.[23] The increase in price of paper was a much more serious problem to solve. Advertising was not depended on to so great an extent as now, and the Baltimore American stated that "At present prices subscribers to newspapers are scarcely paying more for their printed sheets than the cost of the paper."

The publishers sought a solution to the problem which would not affect their subscription lists. There was no alternative; prices had to be advanced, or 50 per cent of the papers of the country would be forced to suspend publication.[24] The Chicago papers met in November, 1862, to consider the condition of affairs, and they resolved to advance the price of dailies 25 per cent and of weeklies 50 per cent.[25] A Washington paper, that was projected to sell at 2 cents, was forced to raise its rates,[26] and the Paterson (N. J.) Register used brown paper for its daily issue.[27] The Boston Traveler, Journal and Transcript in December, 1862, raised their price to 3 cents per copy and reduced the size of their sheets.[28] The four large New York papers, the Tribune, Herald, World and Times, increased prices December 8, 1862, to 3 cents per copy, or $8 per year.[29] Leslie's Weekly advanced to 7 cents, stating that the 80-100 per cent increase in the price of white paper rendered it unavoidable.[30] The Congregational Journal, which had run for forty-four years at Concord, N. H., suspended publication January 1, 1863, because of the high prices demanded for paper.[31] The provincial papers, which depended in a large measure on subscription rates to make ends meet, were in a very bad condition and among these papers the suspensions were more numerous. The book publishers of New York found it necessary to advance their prices 10 to 25 per cent on account of the high cost of print paper.[32]

The Associated Press became interested in the situation and advertised for proposals for a supply of paper to the amount of 300,000 lbs. per week. The idea was to secure a steady supply of paper for the members of this organization.[33] The New York Herald advocated the plan of newspaper proprietors forming a company to manufacture paper and thus defeat the conspiracy of the paper merchants of New York City.[34] New Jersey papers considered seriously this plan of building or renting a mill to make paper for their association.[35] The Rochester Union purchased a mill at Dansville, a near by town, and manufactured their own paper, thus avoiding combination prices.[36]

Shortage of Stock Compels Shut-downs

Late in 1862, paper mills were shut down in all parts of the country because of the impossibility of securing stock.[37] The shortage was fundamentally caused by the blockade and the lack of cotton rags, although other factors entered into the situation. The government contractors used rags in the manufacture of shoddy cloth and thus created an unusual demand, which forced up prices.[38] Free competition of the newspapers, publishers and manufacturers to secure supplies forced the market upward, both in regard to paper and cotton rags. The Commercial Bulletin estimated 35 per cent of the increase was caused by the government excise tax and the depreciation of the currency.[39] Importations had decreased and the supply of old cotton rags was cut down, since the soldiers, a considerable portion of the population, were clothed in woolen.[40]

Although the situation looked very dark, some men were more sanguine and looked hopefully to the ingenuity of the people to find ways and means to render serviceable to paper manufacturers some unusual material.[41] This editorial writer was aware, it

[19] Ibid., p. 5.
[20] *Commercial Bulletin*, December 6, 1862.
[21] Ibid., December 6, 1862.
[22] *Cincinnati Daily Commercial*, October 5, 1861.
[23] *Milwaukee Sentinel*, June 2, 1861.
[24] *Cincinnati Daily Commercial*, November 21, 1862.
[25] Ibid., December 21, 1862.
[26] *Commercial Bulletin*, October 9, 1862.
[27] *Lowell Daily Citizen and News*, December 9, 1862.
[28] *Frank Leslie's Weekly*, December 13, 1862.
[29] *Commercial Bulletin*, October 9, 1862. *New York Tribune*, Dec. 3, 1862. *New York Herald*, Dec. 4, 1862. *New York World*, Dec. 5, 1862.
[30] *Frank Leslie's Weekly*, December 6, 1862.
[31] *Frank Leslie's Weekly*, January 24, 1863.
[32] *Lowell Daily Citizen and News*, November 29, 1862.
[33] *Commercial Bulletin*, November 29, 1862.
[34] *Frank Leslie's Weekly*, December 27, 1862.
[35] *Cincinnati Daily Commercial*, February 20, 1863.
[36] *Frank Leslie's Weekly*, Jan. 10, 1863; *Commercial Bulletin*, Jan. 3, 1863.
[37] *Commercial Bulletin*, November 10, 1862.
[38] Ibid., November 9, 1862.
[39] *Commercial Bulletin*, January 10, 1863.
[40] Ibid.

would seem, of the possibilities of materials other than cotton for the manufacture of paper. The prices in November, 1862, had doubled since the preceding January. Newspaper had increased from 8c to 17c per pound, while finer grades had advanced from 15c and 25c to 40c.[42]

This period of high prices, which extended throughout the fall and winter of 1862-1863, was followed by a decline in the spring of 1863. The high prices stimulated importation and shipments of cotton rags from Liverpool, 12,000 bags being shipped in a single month.[43] The appeal to the public made by the newspapers that old cotton rags be saved and sold, and that old newspapers and books be turned over for paper stock, had been answered. As a result thousands of pounds came on the market.[44] As high as 18c per pound was offered for white rags and 6½c for old papers.[45] Prices declined, but nevertheless thousands of pounds of rags and paper were taken from storerooms and attics. The sale of old papers became so general that the New England Historical Society voted in 1862 that every member should visit paper mills to look for old papers, pamphlets and documents of historical value.

Publishers Urge Tariff Reduction

A market which demanded more supplies made an opportunity for new mills, and during 1863 new ones were constructed and the old ones operated as fast as they could secure raw materials. Others were contemplated, but the owners awaited with some anxiety the action of Congress on paper duties,[46] as that body had seriously considered the repeal of the duties imposed by the Act of July, 1862. In January, 1863, McDougall of California reported a resolution of inquiry as to the expediency of repealing the duties, and similar resolutions were introduced by other men.[47] Secretary Chase reported upon the unproductiveness of the paper tariff, and the Senate requested its Finance Committee to inquire into the expediency of its repeal. The State legislatures of New York and Pennsylvania urged Congress to consider the matter.[48] Newspapers and book publishers showed that there was a necessity for relief from the paper monopoly and that the price of school books must increase unless some action was taken. The 35 per cent ad valorem tax yielded litle revenue, but was high enough to prohibit importations in large quantities. It prevented competition with the American Paper Makers' Association and gave that powerful body an opportunity to determine prices.[49] The association fought the repeal vigorously with money and influence.[50]

The newspapers were absolutely vindictive in their charges against the monopoly. They failed to see any justice in the high price for paper and demanded the repeal to help conditions and prices. Their statements are not conclusive in any sense, for the manufacturers of the association had a point of view and they were not entirely responsible for the situation. The duty did not absolutely prohibit importations, as has been shown, and steady supplies of cotton rags were received from Europe. The monopoly had come about in a natural way. The hard times of the late fifties and early sixties had forced out of business many small mills and had resulted in a concentration of strength and a survival of the fittest. The monopoly was not absolute nor complete. Its regulation of prices was a protective measure, prompted by the hard times of earlier years and a desire to avoid a return to those conditions. Many manufacturers who were not included in the combination sold at a reduction and thus the general level was kept down.[51]

The newspapers worked hard for a total repeal of the duty and brought forward every possible argument, but Congress adjourned without giving them the desired changes, lowering the duties on paper for books and newspapers exclusively to 20 per cent, a change of classification only. The Commercial Bulletin said, "We have asked for bread and have been given a stone." They asserted that the lowering would have no effect on school books or reading material.[52] The blame was laid by the Washington Star on Morrill of Vermont and Horton of Ohio, and declared that these two men would be remembered at a later time.[53] This slight change made importation possible and the import of paper and paper stock was accelerated. In May, 1863, the New York Times purchased 5,000 reams of paper in Belgium and proposed to use the European product entirely.[54] This paper charged the association with lowering prices until Congress had adjourned and then making an increase as soon as the danger of a low tariff was over. At the same time production in all mills controlled by the association was cut down.[55]

The market was fairly well supplied throughout 1863, but toward the last of the year became unsettled, with a tendency toward higher prices for all varieties of printing paper. The demand was brisk and in excess of the supply, the market being bare of stock, with manufacturers engaged on orders ahead.[56] All the facilities of production were fully employed and idle mills were put in running order.[57] An ad-

[41] Ibid., November 22, 1862.
[42] *The Paper Question*, p. 9.
[43] *Commercial Bulletin*, January 10, 1863.
[44] Ibid., February 14, 1863.
[45] Davis, *Manufacture of Paper*, p. 62.
[46] *Frank Leslie's Weekly*, January 10, 1863.
[47] *Commercial Bulletin*, June 10, 1863.
[48] Ibid.
[49] Ibid.
[50] *Cincinnati Daily Commercial*, February 11, 1863.
[51] *Commercial Bulletin*, December 19, 1863.
[52] Ibid., March 14, 1863.
[53] Ibid.
[54] *Cincinnati Daily Commercial*, April 24, 1863.
[55] Ibid., May 11, 1863.
[56] *Commercial Bulletin*, November 14, 1863.
[57] Ibid.

vance of 10 per cent in price came at this time. The cost of manufacturing, including materials and labor, had considerably advanced, and the price of the manufactured article necessarily was raised. The papermakers insisted that the increase in the price of paper was no greater than in other commodities and that they were making the product on a very small margin.[58] The market was not well supplied and mills were running chiefly on current orders which were pressing and compelled them to work up to capacity, so there was no chance for an accumulation of stock.[59] Prices in January, 1864, had not increased materially over the preceding year, but in March of that year an advance was declared because of the increased cost of chemicals and the scarcity and high prices of stock and labor.[60] This advance was 10 to 20 per cent on all lines.[61] Cotton rags were very high, selling for 12c per pound, and the supply in the United States was limited. Prices were unsettled because of the uncertainty of the supply of raw materials, but the general tendency was upward.[62] Paper in May, 1864, took another increase of 10 per cent.[63]

Newspaper Publishers Experience Distress

Prices were coming to the point where newspapers had to increase their rates again or go out of business. The New York Tribune and New York Times went to 4 cents per copy in July, 1864, and suspended all club rates.[64] The other New York papers, with the exception of the Herald, followed the example of the Tribune and Times on August 1.[65] Philadelphia and Boston papers increased their rates to $12 per year, and the New England papers were forced to do the same.[66] The Springfield Republican discontinued its semi-weekly edition to lower publication costs. Small papers all over the country were forced to suspend, and it was estimated that one-third of the papers in the United States in 1860 had stopped publication by August, 1864. The price of paper had quadrupled, while their income had advanced only one-quarter.[67] By 1864, New Hampshire papers had dwindled in number from forty to twenty-five.[68]

As the year progressed, paper stock became less available and chemicals increased in price.[69] The manufacturers had no stock on hand and failed to reduce prices, as they said paper stock and chemicals had not been materially reduced and prices would not decline until the basic materials were lower. A drought in New England retarded operations and caused embarrassment among those mills still dependent on water power. This halt of production was an added argument to the use of steam for motive power.[70]

By the close of 1864, there was not a penny sheet in the country.[71] Papers were forced to reduce their size and raise the price of advertising to make ends meet. At this time the price of print paper was 28c per pound, while book and writing paper was 45c to 60c per pound. The price of old newspapers was 8c per pound, and a renewed search was made in garrets and storerooms, with the result that thousands of pounds of materials of all sorts were turned over to the paper mills. The newspapers urged that all waste paper be saved.[72] Comparison can here be made with 1917-1919, when paper of all kinds was saved, pressed and sold to be used again. Prices declined in 1865, when the cotton mills became more active. Paper stock became more plentiful, and at the same time new processes and materials were being introduced.

(Concluded in next issue)

[58] Ibid., January 16, 1864.
[59] Ibid.
[60] Ibid., March 16, 1864.
[61] Ibid., March 26, 1864.
[62] *Commercial Bulletin*, March 26, 1864.
[63] See appendix.
[64] *New York Tribune*, July 20, 1864. *Times*, July 20, 1864.
[65] *Commercial Bulletin*, August 20, 1864.
[66] Ibid., July 9, 1864.
[67] Ibid., August 20, 1864.
[68] Ibid., October 22, 1864.
[69] Ibid., May 28, 1864.
[70] *The Paper Question*, p. 20.
[71] *Commercial Bulletin*, December 24, 1864.
[72] Munsell, p. 172.

Wages and Wastes

By CARL B. AUEL
President National Safety Council

THE United States is said to be, by practically every other country, the leading nation of the world. Our natural bump of egotism makes us only too willing to accept a statement of this kind, yet if we are to be honest with ourselves we must take issue with it. Other countries with far less opportunities seem to have accomplished even more of some things which are worth while than have we. However, when it comes to murders, robberies, accidents and other tremendous economic wastes, we unquestionably lead the world.

In the single item of fatal accidents, out of every million of inhabitants we kill each year approximately 860, France 477, Great Britain 452, Japan 446 and Denmark 223.

It is, of course, impossible to set down in actual dollars and cents the value of a human life, for no one can approximate even the direct loss involved, to say nothing of the indirect loss. Some attempt has nevertheless been made in the state compensation laws, as well as by juries and by various experts, to do so. The figures vary from $5,000 to $10,000 or more; but taking the midway value of $7,500, and the total number of human beings killed in this country each year at 86,000, we have a loss of $645,000,000. If to this be added the further loss of $2,400,000 due to about 2,000,000 workers, worth say $4.00 per day, being disabled each year for about thirty days, we have $885,000,000 as the total direct loss. There are, however, other losses involved—indirect ones, which simply can not be measured, such as the restricted lives of the maimed and their dependents, lessened

production, increased overhead expense to society, and so on. These would be even more staggering in amount than the direct loss.

All losses must be paid by the public in some form or other, and result either in increasing the cost of living to all of us, or else in reducing our standard of living.

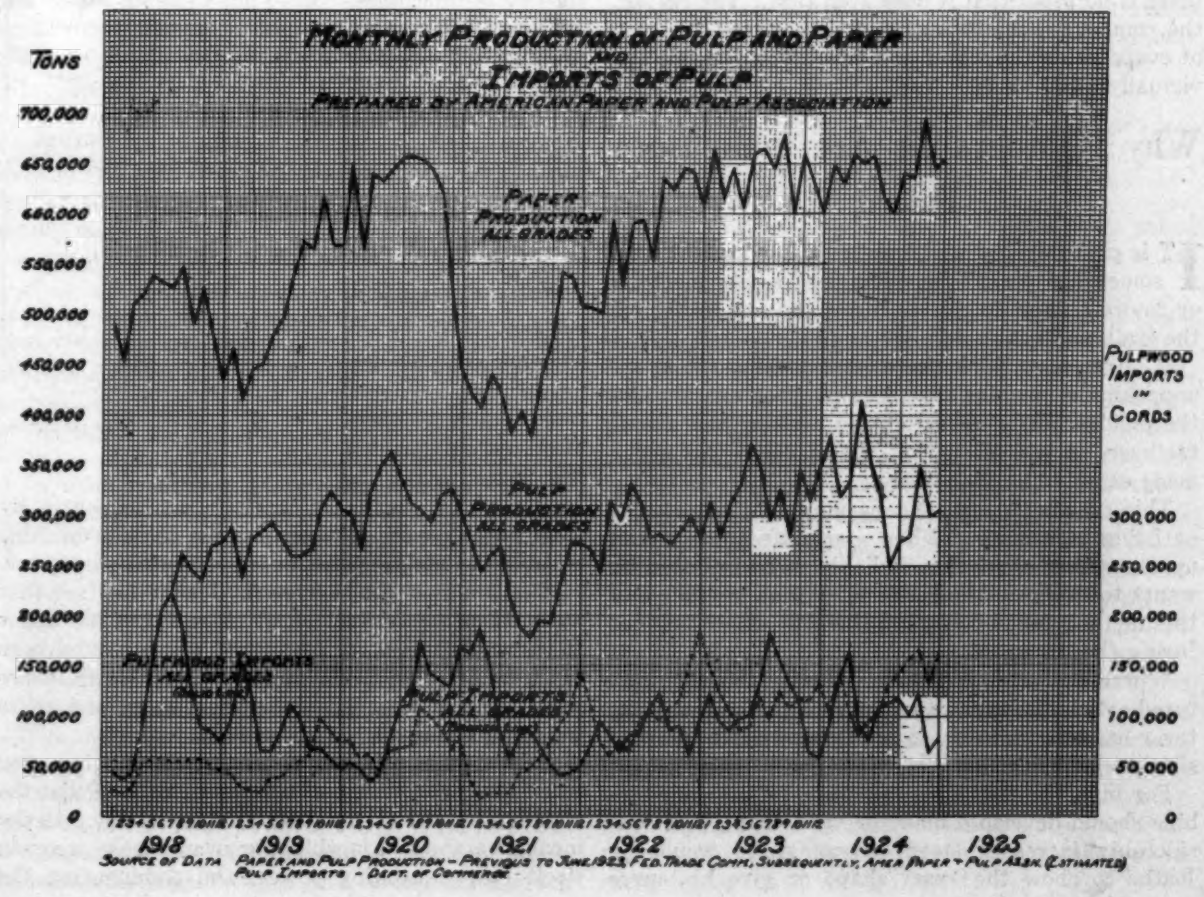
It will be appreciated that all losses occurring in our plants go into our so-called overhead or indirect expense, and thus are included in the final cost of the product. Were there no competition, those losses could be added to the selling price and transmitted immediately to the public, but even that would only help temporarily, since eventually the public would buy less. However, as practically all industries are faced with competition, which limits the increase in prices, losses must be offset by wages, which must be kept at levels sufficiently low to counterbalance.

Let us consider the situation as to wages paid in this and other countries. A comparison made before the war showed that in Germany and other continental European countries they averaged about one-third of what were paid in this country, while in Great Britain they were about one-half. A few weeks ago I talked with a professor from the University of Charlottenburg, Germany, and he said that wages in Germany now average about one-fifth what they do in this country.

If now it is impossible to keep foreign-made goods out of this country, notwithstanding our high tariff, how much harder will it be for us to compete with countries outside of our own, where there is no tariff, or where all goods enter on an equal footing.

It simply means, if we are going to hold up our end and American workmen are to continue to receive their present high wages, enabling them to live on a better scale than foreign workmen, it is absolutely necessary that losses and wastes of every kind throughout our country must be brought down to the so-called irreducible minimum. And in this effort the responsibility does not rest upon the employer alone, for wastes are by no means confined to the industries. The responsibility rests also upon the worker and the public generally, for statistics show that as a nation we are inclined to be wasteful and extravagant.

There is no more important unsolved problem confronting our country today than that of waste, involving as it does every individual. Unfortunately, the majority of our people do not as yet realize that such a problem even exists, and it is a question whether we have the foresight to awaken in time to the consequences of our present egotism, which keeps us more or less blind to our own shortcomings, or whether we shall have to learn by the bitter and more costly route of experience.



Pointers for the Engineer

By W. F. SCHAPHORST, M. E.

"Coal Saving Compounds?"

THE writer is informed that there is another compound on the market which is claimed to "mysteriously" save coal. Simply sprinkle the compound on the coal; that's all there is to it! It is called "Econome Coal Spra."

These good-for-nothing compounds appear from time to time, and, surprising as it may seem, prominent concerns have been induced to invest in them and actually sprinkle them on coal.

It is claimed by chemists who have made analyses that these compounds are usually made up principally of ordinary salt—sodium chloride. The purchaser is directed to mix the salt with water and sprinkle it on the coal.

Instead of benefiting combustion a loss usually results. Salt is not a first-class combustible and neither is water. One engineer makes a guess that evaporized salt may possibly have a tendency to remove soot and ash from the boiler surface, which of course would be beneficial, but so far as this writer knows there is no proof that it does even that. The cost of the compound, the cost of applying it, and the cost of evaporating the water and vaporizing the salt are virtually a total loss.

Why Photographs Are Sometimes Faked

IT is probably not well known that manufacturers sometimes "fake" the picture of a new machine or device. They do this to throw the competitor off the trail, and not to deceive the buyer.

A buyer may think there is something wrong on unpacking a machine that does not look exactly like the picture but on investigating, writing the manufacturer, he will learn that the machine was never made exactly like the picture.

This scheme is regarded by most of its followers as being legitimate. When a manufacturer works up something novel that is liable to be imitated he wants to "keep in the lead" as long as possible and this method tends to retard the copyist without injuring the buyer.

Where the actual machine is better than the pictured article, it looks to me as though the manufacturer has a case clearly in his favor despite the consistent clamorings for "absolute truth" in publicity.

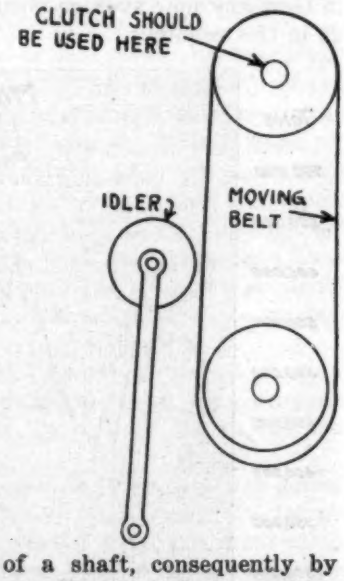
For instance, if the manufacturer of a steam turbine should develop a blade or vane shape that considerably increases steam economy, he would be loathe to show the exact shape or give his curve formula. He would "fake" the shape in his photographs. The copying competitor would therefore have to see, measure, and study the inside of the turbine before he could duplicate the curve, unless, perchance, he happens to develop about the same thing at the same time, an event that sometimes, but rarely, happens.

I do not say that many manufacturers nowadays are copyists, although I presume we all are copyists to some extent in our various lines. However, it usually pays to be cautious, and this is one of the ways in which to be cautious.

Some Power Saving Hints

THE makeshift money and power wasting contraptions that one sees in many mills of today is astounding.

Just the other day, I was in a large plant where I saw a drive of which I made a sketch and which I am showing herewith. The drive is a vertical one with the upper pulley continually running. The belt is made long as indicated, so that it dangles down below the lower pulley when the idler pulley is released as shown in the sketch.



When the idler is released there is not sufficient friction between the belt and lower pulley to operate the drive to which the lower pulley is connected by means of a shaft, consequently by simply shoving the idler against the belt the machine is caused to start or stop at the will of the operator.

This is a very poor design in view of the fact that an inexpensive friction clutch connecting the upper shaft to the upper pulley would serve the purpose much better. A clutch would be much safer, there would be far less belt and pulley wear, and there would be practically no power loss.

As it now is, the belt is continually moving even when the machine is not used, and I noticed that the machine is used very seldom during the day. In the meantime, the belt is whipping around loose, wearing itself out, consuming power, and endangering the

lives of those who come near it. If the belt would maintain a perfectly straight and even position such as pictured in the sketch it might not be so bad, but of course it doesn't do that. The belt is continually waving and flopping from side to side during the entire day. I dare say that there is much more wear when the belt is not being usefully employed than when it is in service.

By all means don't use a drive like this. If the lower pulley were the live pulley, as is sometimes used for driving overhead shafting with an arrangement similar to this, it would not be so bad. However, there is no good excuse for using a makeshift device like this permanently with so many excellent and inexpensive friction clutches on the market.

This particular drive measures about 14 feet from shaft center to shaft center. The belt is of 6-inch double leather. Any user or buyer of belting will be able to quickly make an estimate of the expensiveness of this drive.

In another room in this same plant, I found some large machines, all of them running at full speed, and nobody in the room using them. I have seen similar instances before but never on so large a scale. Such waste as this is inexcusable. A friction clutch could be used on each machine as well as not. The time required to throw a clutch in and out is insignificant and worth more to the owner than the cost of fuel wasted for driving the machinery and the cost of replacement due to extravagant wear and tear.

In another department, I found machines that were driven by individual electric motors. I found a number of them humming along merrily with nobody at the machines and the machines doing nothing. One of the great advantages of individually driven machines is the power saving that accrues from shutting off the motor as soon as the operator has finished with the machine. The current required to run a motor at no load is often considerable. Besides, there is the additional loss due to wear, the structural losses due to vibration, and the unnecessary use and cost of lubricants. By all means shut off individual motors when machines are not in use.

Convert Coal into Oil

THE noted Dr. W. F. Rittman, at one time with the United States Bureau of Mines, now with Carnegie Institute of Technology, declares that 8,000,000,000 gallons of petroleum oil can be made from the 800,000,000 tons of coal now annually consumed in the United States. According to reports in my possession he said:

"The use of oil under boilers for power is a criminal waste of a limited natural resource. All oil should be manufactured into gasoline for the automobile, a process now possible of accomplishment.

"Instead of using oil to replace coal for power, coal should be made to yield its byproduct, oil, which in turn can be made into gasoline. When properly by-producted by distillation, coal can be made to yield more than 10 gallons of oil per ton, and the solid residue used to make power.

"By-product plants should be an integral part of all central power plants, thereby assuring a gasoline supply for automobiles, eliminating smoke and making a cheaper electrical power."

How to Mark Pipes

MEMBERS of a subcommittee of the American Society of Mechanical Engineers have been investigating the matter of marking pipes and have made an interesting report. They have decided that the best way to mark a pipe is to letter on it by means of stencils. The material that is carried in the pipe line and the direction of flow should be painted on the pipe. The directions of flow should be indicated by a painted arrow.

Where the piping is overhead, it is best to do the lettering beneath the mid-point of the pipe so that dust will not settle on it and obscure the marking.

If the pipe is black, paint an aluminum background in the desired position on it so that letters in black may be painted upon the aluminum background. In large plants where there is much piping it is important to have all pipes marked. Marking is helpful not only to the engineers and pipe fitters but makes it easier for new employees to "catch on" quickly and know what's what.

Damper Regulation Superior to Ashdoor Regulation

THE writer has a number of times been asked which is better—damper regulation or regulation by means of the ashpit and firing doors.

Upon giving the matter thought, almost anyone will be able to see that damper regulation is better. For example, when ashpit and firing doors are closed, the heated gases within the furnace and chimney have a tendency to escape just the same. A vacuum is formed, and because of this vacuum in the furnace, there is an increase in pressure from without acting upon the furnace walls and an increased tendency for air to leak into the setting. There is therefore more air in leakage when draft is regulated by means of ashpit doors than when regulated by means of the damper. Combustion is more easily controlled. The heat is forced into contact with the boiler surfaces better under damper regulation than under ashdoor regulation. Thus, for example, when the damper is shut off, the pressure within the furnace is greater than when the ashdoor is closed, consequently more of the heat will be utilized because heat transmission is better from a dense gas than from a rare gas. Regulation is also handled more easily by means of the damper.

Cost and Factory Accounting—Part XI

By H. M. GRASSELT
American Writing Paper Company

FINISHING activities may be divided into two distinct classes; namely, Finishing Operations Proper and General Finishing. The former embraces the following principal process:

(a)—Rewinding; (b)—Calendering (Sheet and Super); (c)—Cutting; (d)—Sorting; (e)—Trimming; (f)—Pasting; (g)—Plating.

These operations, except sorting, are covered by individual predetermined machine hour rates (M. H.).

The cost of sorting is charged by predetermined employee hour rates (E. H.). In many mills, the cost of sorting is based on the actual hourly wage rate paid to the sorter, plus a fixed rate per sorter and per hour to cover the overhead expenses.

General Finishing includes the following main subdivisions:

(h)—Boss Finisher; (i)—Counters; (j)—Joggers; (k)—Sealers; (l)—Labelers; (m)—Tiers and (n)—Misc. Labor.

No special departmental rates are used for the processes that fall within these classifications; all expenses for General Finishing have been included in and properly allocated to the departmental standard rates for the operations enumerated under Finishing Operations Proper.

There exist very few ideally balanced paper mills in which the equipment is so uniformly aligned, that each finishing unit operates continually at the capacity inaugurated by the production of rough paper. Normal operations on the paper machines do not always mean similar conditions in the finishing room. For instance, in a fine paper mill with platers in addition to calenders, during certain periods many orders for plater finished paper may be received, which logically results in decreased calender activities. Then again, the demand for paper in rolls may increase far above the average and considerably affect cutting, sorting and trimming operations.

Those conditions and peculiarities have to be seriously considered and reckoned with at the fixation of predetermined departmental rates. A survey of past operations and results will furnish reasonably accurate basic figures for the determination of standard rates and proper allocation of overhead expenses to the individual finishing units.

Finishing room efficiency requires the best possible operating economics. The first prerequisite to attain the end in view is, to determine the exact number of employees that are required for each unit under operating conditions which may be kept within the established standards as long as operating conditions and alignment of equipment remain unchanged. Loafing is expensive and in many plants with varying finishing operations, a methodical study of prevailing conditions may point the way to substantial savings.

The next factor in keeping finishing costs at a minimum is efficacious arrangement of equipment and tables. Finishing operations that are based on the straight line principles, are most economical. Elimination of intra-factory trucking and excessive handling by arranging the flow of materials from process to process in the right sequence means more production and less finishing broke.

DAILY REWINDER REPORT

Date.....192.... Rewinder No.....

Prod. Order No.	Grade	Basis Weight	Rolls Finished		Finished Size of Rolls	Time		
			Number	Weight		Start	Stop	Elaps.

Operator..... Clock No.....

.....Foreman.

Figure 14

The third factor in finishing room economics is rough paper that is perfect in every respect. Many of the boss finisher's worries and troubles originate in the beater room and on the paper machine.

In the introductory chapter on Finishing, special emphasis was put on good rolls, good winding and proper splicing as indispensable prerequisites to efficient finishing operations. The condition of the rough paper itself, its moisture content, its formation

and its conditioning demand continuous study and attention. It is quite obvious that no finishing room can produce the best possible results if the rough paper is lacking in quality and condition.

Here again it is brought forcibly to mind that team-work between departments, co-operation between foremen, and going down to brass tacks constitutes the foundation for sound plant economics. The whole structure of an organization is rather loose if there exist friction and indifference among men and between departments.

For the purpose of collecting cost data, all finishing room activities have to be covered by plain and well-adapted forms. The operators of the respective units must be instructed and educated in making the few necessary entries. It is comparatively easy to obtain accurate records from the persons delegated to do the work, if they are properly acquainted with its nature and purpose.

(a)—Rewinder. A form similar to Figure 14, Daily Rewinder Report, suffices for collecting of operating data. The operator is to be held responsible for correct entries. It is essential to have the right production order numbers and the exact time spent on each reported accurately.

Rewinder work is greatly facilitated by perfect rolls. Tear-outs, breaks and inadequate splicing are

DAILY CALENDER REPORT

Date.....192.... Tour 1-2-3. Super / Sheet } Calender No.....

Production Order No.	Grade	Size	Ream Weight	Time Start.	Time Finish	Time Elaps.	Pounds Cal.	Times through and Remarks

Calender Man..... Clock No.....

O.K.....
Foreman.

Figure 15

responsible for small production and excessive broke.

A predetermined Machine Hour rate is used in charging rewinder costs to the respective production order numbers.

(b)—Calenders (Sheet and Super). Paper for calender finishing must be properly conditioned; if super calendered, rolls must be perfect and wound evenly. Individual motor drives with adjustable and controllable speed, conveyors and hoists are a few decisive factors in getting maximum out-put.

Form 15, the Daily Calender Report, is used for super calenders as well as sheet calenders or breakers. The entries are similar to those into the Rewinder Report. It is very important, that the opera-

DAILY CUTTER REPORT

Date.....192.... Cutter No.....

Production Order No.	Grade	Size	Ream Weight	Time Start.	Time Fin.	Time Elaps.	Pounds Cut	Remarks

Cutter Man..... Clock No.....

O.K.....
Foreman.

Figure 16

tor state the exact number of times the paper goes through the machines in the column, "Times through."

The cost of calender operations is based on a predetermined Machine Hour rate.

(c)—Cutters. Here, like in the preceding mentioned units, good rolls adequately spliced and wound and of uniform diameter, and a hoist to expedite charging of the machines, are essential prerequisites to obtain maximum results and eliminate broke. Especially, rolls of uniform diameter mean fewer stubs and less drawing-out of operations.

The interspersed Figure 16, the Daily Cutter Report covers completely the requirements for collecting of cutter cost data. It is necessary that the operator enter into the column "Remarks" the number of rolls to one set cut and also the condition of the paper, if the output is such as to require an explanation.

Cutter costs are also based on predetermined Machine Hour rates.

It may be emphasized, that an extra set of shafts and collars expedites charging of the cutters and other machines that are charged with rolls. The operators have ample time to put shafts into a new set while one is being cut off, and to align the rolls properly near the machine. Thus the time of charging is easily reduced to a minimum and the daily production correspondingly larger.

(d)—Sorters. Whenever possible, sorters should

work under a piece rate or bonus system. To offer an incentive for increased efforts is especially beneficial to the daily output in that kind of work. Daywork, of course, will always remain under certain conditions, but even here, a definite number of reams should be adopted as minimum sorting.

Higher grades of paper are, as a rule, sorted into three boxes; "Perfect," "M's" and "Broken." Of course, defective double sizes have to be cut down to single sizes and resorted.

To insure continuous operations, the sorters have to be regularly supplied with unsorted material, the sorted stock has to be removed at intervals; in short, things must be kept moving systematically in order to attain the highest results. A rigid inspection of the sorted paper is necessary, and well-defined lines of demarcation must be established between the particular sortings.

Supervision alone is insufficient in sorting of paper. Permanent inspection, education of help and proper lighting are necessary to achieve the best possible results quantitatively as well as qualitatively. Above all, the paper must be sorted right. There must be no complaints from customers as to the quality of sorting. On the other hand, the manufacturer cannot afford to have too much paper thrown into the "M's."

To judiciously choose the right midway is a problem that every manufacturer of fine papers has now and then.

Figure 17, the Paper Sorters Daily Report, covers the requirements for the collection of sorting costs adequately. The cost of sorting is charged according to a predetermined Employee Hour rate (E. H.), or at the actual wage rate paid the sorter plus a fixed sum per sorter and per hour to cover overhead expenses.

The best methods of determining the number of reams sorted by each employee is, to have a counter do his work from sorter to sorter, have a helper remove the counted paper and credit each sorter with the exact number of reams sorted.

However, physical conditions in many finishing rooms render impossible such procedure. Here the number of reams sorted by the individual sorter is estimated or rather measured. Since the bulk of the various grades of paper made in a plant is ordinarily maintained at a specific standard in all runs, average definite standards for heights of reams in the respective grades, sizes and weights may be easily adopted. It will be found that the estimated number of reams in practically every instance tallies with the actual count. The correctness of the estimate is further disclosed by subsequent counters' and trimmers' reports and totals in the finishing summaries for the individual production order numbers. (These summaries and the rest of finishing operations and their cost data will be discussed in a future issue).

To achieve the best results in the finishing operations described in the preceding paragraphs, necessitates the introduction of standard production rates per operative hour for rewinders, calenders and cutters. Most manufacturers have those standard production rates for their paper machines for the purpose of effective production control. Why not have similar means of checking the subsequent finishing processes? Although the matter seems to be somewhat complicated on account of the varying condition of paper, number of rolls in a set that is put into the cutter, times through on the calender and other peculiarities, the fact remains that those rates can be established and used for efficient control of finishing operations.

PAPER SORTERS' DAILY REPORT

Date..... Name..... Clock No.....

Production Order No.	Grade	Size and Weight	Finish	Time on Order			Reams sorted			Rate	Earnings	
				Started	Finished	Elapsed	P	M	B			
TOTALS												

O.K.....Foreman.

Figure 17

Furthermore, the daily cost records that cover the finishing activities should be more than mere memorials of ancient history to be compiled and neatly filed away beneath the epitaph: "Here lies Run No. 100.—It was rotten." To the contrary! These records constitute active indicators of conditions and efficiency in the finishing department; they must be scrutinized day by day, the results reviewed and bad features traced to their sources for the purpose of precluding repetitions.

Foreman Training in the Paper Industry

Part II—How to Plan and Lead Foreman Training

By J. K. NOVINS

Author of "A Training Program for the Factory Foreman," "Foreman Training in Practice." "Manual of Practical Training for the Railroad Foreman," etc.

Organizing the Foremen's Conference

AFTER all arrangements have been made, a leader secured and a study of the educational needs made, how should the plant go about organizing the foremen's conference? Several things enter into consideration.

First, a proper time should be set aside during which the foremen are to meet for the discussions.

Second, the foremen should be carefully chosen for the conferences, with a view to a fair representation of the various departments in the plant, and also with a view to bringing those foremen to the conference who show the greatest potential interest in the training.

Third, the management should exercise care not to interefere with the discussions, or in any shape or manner obstruct the leader in his work.

Fourth, the management should supply the necessary facilities for instruction, such as properly located and properly equipped meeting place.

This series is a manual on the subject of foreman training, and as such is replete with valuable suggestions for the installation of a foreman training course in the paper industry.

Part two contains five chapters, of which this article is the third. "Securing Foremen's Co-operation for Effective Training" will appear in the next issue.

The author of this series is available to answer any inquiries regarding any phase of foreman training on which the reader might wish to be enlightened.

Time for Meetings

The time for meetings of the foremen should be so arranged as not to interfere with factory operations. A time should be chosen when the men will feel in the proper mental and physical condition to benefit by the instruction.

The conference of foremen at the A. M. Collins Manufacturing Company plant met for ten days daily from 9 to 11 in the forenoons and from 2 to 4 in the afternoons, with no sessions either on Saturdays or Sundays. The conference took place in the fall.

At the Bemis Bros. Bag Company plant, the conferences were held last winter for a period of two weeks beginning February 18, 1924. The sessions were two hours daily during the men's working time and on company time.

At the Hammermill Paper Company plant one conference was held with foremen for twelve days, five hours a day, making a total of sixty hours for the entire conference. The foremen assembled daily at 9 o'clock in the morning, meeting until noon time. They then met again for two hours in the afternoon at 2 o'clock. Another conference was held with a superintendents' group one hour daily for the same period of time. The conference was held in the winter. In the spring another conference of foremen was conducted at this plant, the foremen meeting daily for four hours—two hours in the morning and two hours in the afternoon.

The conferences conducted recently at the plants of the Champion Coated Paper Company, at Hamilton, and the Gardner & Harvey Company, at Middletown, Ohio, departed from the usual custom of holding the conferences daily during a brief period of time. Instead, the foremen met once a week for about seven months. This was felt to be the better method, because the foremen would not be taken away from their work for any length of time in order to attend to the meetings.

Choosing Foremen for Groups

In order to best convey to the executive the manner of choosing a fair representation of foremen for the foremen groups, the writer will reproduce in this article the personnel of several such typical conferences. These groups were organized in paper mills and in plants manufacturing paper products. Let us take as a typical group representation that organized at the A. M. Collins Manufacturing Company plant.

In this group there were seventeen men, representing the main departments in the plant. The following is the list of names of those foremen attending

the conference, followed by the name of the departments they represented:

1. Albert Klufkee, Pasting.
2. Wm. Levick, Coating.
3. Chas. Grant, Calendering.
4. Wm. Schott, Finishing.
5. Edward Travis, Cutting.
6. John Klaus, Sheet Assorting—Stock.
7. Robert Carroll, Folder Assorting—Cards.
8. John Tuke, Shipping.
9. Louis McManus, Embossing.
10. Wm. Pomnitz, Printing.
11. August Monhoff, Composing.
12. Louis Hillgeas, Machine Shop.
13. Harry Williams, Carpenter Shop.
14. Wm. Schuler, Engineers—Firemen.
15. Wm. Mumme, Bank Folding.
16. Peter Baldwin, Janitor.
17. Harry Dewees, Shipping.

In the foremen's group recently organized at the Bemis Bros. Bag Company there were fifteen men, listed as follows, together with names of departments and duties:

1. Thomas M. Scruggs, Superintendent.
2. Miss N. F. Winn, Personnel Director.
3. L. E. Sweetland, Mfg. Foreman.
4. Mrs. Cora Corser, Head Inspector.
5. C. A. Hicklin, Head Inspector.
6. Geo. G. Eby, Machinist Foreman.
7. Lee Doolittle, Printing Foreman.
8. E. McDonald, Warehouse Foreman.
9. C. E. Blackaller, Planning Clerk.
10. Vernon Warren, Mfg. Machinist.
11. E. J. Malby, Shipping Clerk.
12. C. L. Long, Asst. Mfg. Foreman.
13. Jesse Stevick, Stereotyper.
14. W. D. Morrison, Millwright.
15. G. D. Connor, Purchasing Agent.

The following foremen composed the group organized at the Champion Coated Paper Company:

1. George Mallott, Coating Room.
2. Wm. Stephenson, Reel Room.
3. Clyde Wisby, Calender Room.
4. George Laugh, Cutter Room.
5. Max Schild, Color Room.
6. Robert Young, Finishing Room.
7. H. Lee Wehr, Sorting Room.
8. Hubert Farmer, Color Room.
9. Manford Witters, No. 1 Beater Room.
10. Chris Ruby, Receiving Department.
11. Henry Hauck, No. 2 Beater Room.
12. Frank Hixon, No. 2 Machine Room.
13. Jos. H. Rolfe, No. 2 Cutter and Calender Room.
14. John Reedy, Machine Shop.
15. R. S. Lowry, Electrical Department.
16. Wm. Lickert, Boiler Room.

Management Co-operation

You will note after a reading of the lists above that in some of the groups are names of superintendents and personnel managers. While it is a policy to confine the groups to the foremen, it is sometimes necessary to include one or two higher executives, usually a superintendent or a personnel director. These officers are usually in close contact with the foremen every day, they understand the foremen's viewpoints, and the foremen have explicit contact in their integrity and good will and usually do not hesitate to express their opinions in the presence of these officers. Furthermore, the presence of a superintendent or personnel director is often of distinct advantage, as these men are the ones that will direct the foremen training in the future and they therefore benefit by participation in the initial program.

However, it is not wise to have one of the higher officers of the company who is not in close contact with the foremen to attend the conferences, except for an occasional brief visit to see how the work is coming along. It is the experience of every group that discussions become stultified and timid during the continual presence of one of these administrative officers.

An interesting experience was recently related to the writer by Mr. T. E. Jones, of Cleveland, Ohio, a well known conference leader. Mr. Jones organized a foremen's conference in a large plant. The manager of the plant was somewhat skeptical as to the value of the training proposed. He cherished a notion that in the absence of a supervisory power the leader would be tempted to fill the heads of the foremen with undesirable and radical ideas. The leader agreed that the manager should be present at the conference to see for himself that he was mistaken in his notion. To this the manager agreed.

As the first few meetings progressed, the leader noticed that the foremen were not participating in the discussions with real spirit. They performed what was expected of them in a very perfunctory manner. The leader sensed the reason, and accordingly he requested the manager to abstain from attendance. Otherwise, the leader said, he would have to discontinue the meetings. The manager finally saw the point, withdrew, and henceforth the men opened up and delivered themselves of many constructive ideas to increase efficiency in the plant. When the manager was told of this he expressed the opinion that they were really valuable suggestions by which the concern could benefit. He was convinced that foreman training was a valuable asset to the concern. He cast off any suspicions he had harbored, and himself entered into the spirit of the proposition with an open mind.

Similar instances were related to the writer by Mr. R. W. Jenkins. In approaching executives in paper plants with the proposition that they put on foremen conferences in their plants, Mr. Jenkins is often met with a cloud of suspicion, although as executives are becoming educated to the need of foremen training and begin to realize its values, this hesitancy is fading.

In cases where he finds it difficult to impress the executive of the real value of foreman training, he suggests that the latter sit in on the first few meetings to convince himself. This is sometimes done during the first few meetings, after which the executive leaves the conference to the foremen and the leader.

To illustrate how some executives are changing their notions about foreman training, Mr. Jenkins recently approached the executive of a paper house in Ohio. Mr. Jenkins informed him that the foreman training service was organized by the state in co-operation with the federal government and is free to local industry willing to take advantage of it.

"Yes, yes," the executive replied quickly. "I heard about your work at the meeting of the Miami Paper Manufacturers Company. There is only one thing we are interested to know right now. When and where can you start this training for our foremen? We are ready."

How Paper House Co-operates

During his visit to the plant of the Champion Coated Paper Company, at Hamilton, Ohio, recently, the writer witnessed a perfect example of co-operation to put over a program of foreman training. When Mr. Jenkins interested the concern in the project the executives showed instant interest. In fact, Dr. Louis H. Frechtling, Director of the Department of Industrial Relations, was so enthusiastic about the idea from the beginning that he saw in foreman training a panacea for the solution of many industrial problems. From the beginning Dr. Frechtling has spared no effort to help make the program successful. But he did more than offer good-will and moral aid. Dr. Frechtling arranged for the construction of a special conference room for the express use of the foremen. This cost the firm considerable money, but as Dr. Frechtling realized from the start that the ultimate result would be the establishment of a permanent foreman training program, the expense was for a worthwhile purpose.

The room is built to accommodate thirty or forty foremen comfortably. It opens up on the yard, so that foremen could come to the room right from their jobs. They can come in their workclothes, unwashed, if they desire it so, and they can leave whenever they want to attend to urgent duties.

In the rear of the room is a door which leads to Dr. Frechtling's office. This means that Dr. Frechtling is at the beck and call of the foremen for information on any problem or subject under discussion. Also, Dr. Frechtling can drop in now and then to see how the work is progressing and to say "How do you do" to the men.

In the rear of the room is a large blackboard. Toward the left-hand side of the blackboard, within full view of the foremen, is an iron stand for charts. In front of the blackboard is a conference table for use by the leader.

The chairs are equipped with flat arm supports on which the foremen can spread their lecture papers and make any notes they desire. But the most interesting feature to observe is how the chairs are placed.

In an ordinary schoolroom or lecture hall, the chairs are so placed that the auditors face the teacher or lecturer. Not so in the Champion Coated Paper Company foremen's room. The chairs are placed in rows against each wall in such a manner that the foremen face each other.

The purpose of this arrangement is very evident to the man who has had some experience with foreman training work. A successful foremen's conference consists of the interchange of information and experiences between the foremen. To promote such a mode of discussion, it is best, therefore, that the men be seated as if they would in their own parlors discussing politics and baseball. This would not be the case were the chairs placed like in any schoolroom, all the foremen facing the blackboard.

Executive Introduces the Conference

Another interesting feature about the foreman training program in the Champion Coated Paper Company plant is that the company recently reproduced a photograph of the foremen's conference room in one of its advertising posters that generally are distributed to dealers, as an indication of the company's progressive labor policy.

Through Dr. Frechtling, and the efforts of the other company executives, the plant foremen are taking a keen interest in the training.

In introducing the series of conferences held in the plant last year, Dr. Frechtling addressed the foremen, calling to their attention what the state's facilities are for foremen training, and the need for the foremen to take advantage of the educational facilities.

"Personally," Dr. Frechtling told the men, "I feel that you men are to be congratulated on your having accepted the opportunity of taking part in this work, work which will be soon marked as the beginning of a new epoch in our organization."

"That the management does believe in the work," Dr. Frechtling emphasized strongly, "is manifested by the approval they have given the course and the equipment they have furnished to carry it on."

Foreman training and other industrial relations movements, Dr. Frechtling believes, have ushered in a new era of industrial good-will.

"To-day," he said, "management looks upon those engaged in the same line of industry as friends and organizations have been affected where problems affecting the industry as a whole are discussed. To-day the superintendent of one company can go into the plants of the great majority of other companies engaged in the same line of manufacturing and inspect the entire processes involved in the making of their product."

Editorial Comment

By WILLIAM SIBLEY

A Nation of Stock and Bond Holders

DUE in large measure to the financial education given the general public by the recent Liberty Bond Campaigns, there has been an astonishing increase in the number of citizens who have placed themselves in the bond and stock holder class since 1913. Prior to the war, the number of stockholders in the nation's industries was approximately 4,500,000. Today the figures are said to be in excess of 14,400,000 by H. T. Warshow, nationally known economist.

In 1917, only 9.7 per cent of the total number of persons whose incomes were less than $5,000 annually received dividends from stocks or bonds. This proportion has now increased to over 20 per cent, the peak being reached in 1921 when 22.7 per cent of the total of all persons filing this class of income tax statement showed stock or bond dividends to be a part of their income.

In 1915, the total number of stockholders in Class I railroads was 511,000, and the average holding, per stockholder was $13,361. At the present time, according to the reports filed with the Interstate Commerce Commission, this number has increased to 807,000 and the average holding has decreased to $9,110. While this increase is not so pronounced as in the case of industrial holdings, it is perhaps more remarkable because of the dearth of new railroad stocks during the ten years from 1914 to 1924.

Paralleling the increased distribution of ownership of securities is the growth of savings bank deposits and of life insurance policies. In 1913, the total insurance in force was very slightly in excess of fifteen and one-half billion dollars, while at the beginning of 1924 that figure had been increased to nearly 57 billion dollars. A report from the American Bankers' Association shows an increase in savings deposits from $8,400,000,000 in 1912 to $20,874,000,000 in 1924. During this same period, the number of depositors increased from 12,584,000 to 38,868,000.

In commenting on the almost astonishing increase in savings account depositors, William E. Knox, President of the American Bankers' Association, said: "The full significance of this is realized only when we visualize savings deposits as meaning much more than merely dollars in the banks. They really mean an increase in the accumulated productive capital of the country, since money deposited in the banks as savings is promptly applied by the bankers in the purchase of securities by which plant, railroad and other industrial developments are made possible. These figures mean therefore, that the small savings of many millions of people, instead of being frittered away in the purchase of goods that are immediately consumed, which involves a destruction of capital, are gathered together and applied in the better utilization of capital through the upbuilding of industrial equipment. This means the preservation and perpetuation of the country's physical wealth and its application to the production of further wealth more easily and in larger volume, resulting in a high standard of living for all classes in the country."

Currency Turnover

ACCORDING to the New York Trust Company, the volume of debits to individual bank accounts was 99 times the actual money in circulation, during 1924. Their figures show that the total of all classes of financing in 1924 (exclusive of Government securities) was over 6 1/3 billion dollars, whereas the total money in circulation (January 1, 1925) was less than 5 billions of dollars.

With this circulation of about five billion dollars, the resources of the banks at the close of last year totaled over 55 billions, while individual bank deposits were nearly 43 billions, loans and discounts being over 31 billions.

These figures, a comparison of the actual money in circulation with the volume of transactions or credits, indicate better than anything else the rapidity of turnover in currency. Indeed, during the last year, currency turnover was so rapid that none of it stopped with the writer long enough to form an acquaintance. All the money that staid with the writer last year could be poured molten down his throat without the slightest damage—to either the money or the throat.

Third Conference Presages Good

ON JUNE 21 of this year, the third general conference of the International Chamber of Commerce will be held in Brussels. This conference will be attended by representatives of business interests of forty nations, they meeting to consider means to facilitate trade between countries and to further the adoption and simplification of commercial practices by which the interchange of goods internationally is carried on. Among the representatives will be bankers, economists, financiers, manufacturers, merchants and industrialists, many of whom are figures of international importance.

While it must be admitted that the Chamber has only embarked upon its career of usefulness, yet even now it has accomplished much to its credit. It was at the Rome conference of two years ago that the principles underlying the Dawes plan were discussed and adopted. The organization is the only agency by which international opinion, based on experience and the judgment of business men, can be formulated, and it is practically the only means by which we may weigh economic matters of international importance in the light of sound principles rather than as subjects for political controversy.

The forthcoming conference will discuss many international business questions in which American industry is deeply interested. For instance, it will attempt to formulate principles designed to obviate

—— on Timely Subjects

the multiple taxation of industrial enterprises operating in more than one country. International aviation, trademarks and patents, parcels post, postage rates, uniform laws governing the use of the check, the treatment of shipping, further steps in the application of the Dawes plan, are just a few of the more important problems coming before the conference for consideration. Not any one of these questions could be solved by any one country, and experience has proven it to be worse than futile to attempt their solution by leaving them in the hands of professional politicians. American industry may look forward with interest to the third conference of the Chamber, which is now five years old, for much good should come therefrom.

Destroying the Worth of Our Universities

IT HAS been proposed in the Ohio legislature that a committee be appointed to carefully survey all colleges and universities of that state with the view to ascertaining the extent and character of radicalism in those institutions.

To the uninformed this might appear just another example of "governmental interference." However, if this committee is appointed and the investigations made with care, it will be found that subversive movements have gained a far greater foothold on both student bodies and faculties than is commonly supposed.

Several years ago the first organized attempt to inculcate the principles of socialism into those connected with educational institutions was made by establishing what was then known as the Intercollegiate Socialist Society. Finding socialism repugnant to Americans in general, the scheme was changed in form and figure, the "League for Industrial Democracy" being substituted. This organization has grown rapidly, in size and influence, during the past few years, and will be found upon investigation to be the parent of individual "liberal clubs," "political science clubs," etc., which form the nucleus around which radical thought in colleges may center its activity.

Recently Mr. Paul Blanshard, who has been and is one of the leading propagandists of this organization, has been lecturing in the colleges and universities of Iowa. His trip was eminently successful if we can judge from the size of his audiences. At Grinnell College, it is said he talked before an audience of 500. At the University of Iowa his audience is reported to have been more than 300, while at Penn College, Oskaloosa, he enjoyed an audience of something over 375. Five hundred listened to him at the Iowa State College.

Much of the doctrine of socialism and communism (the two are identical in aim, differing only in tactics) is advanced with the idea of "beating the other side"—assuming there to be another side to the question of whether the United States shall continue as a republic or be destroyed, its Constitution abandoned and a co-operative commonwealth (the kind of government now in Russia) substituted.

Not only Ohio, but many other states might well start a thorough investigation of radicalism in its colleges and universities. Such investigations will release the light of truth—and that light always has and always will destroy the germ of socialism and communism.

Send Your Boy to Camp

IF YOU are fortunate enough to have a regular, red-blooded, American boy, age 17 to 24—send him to the Citizen's Military Training Camp this summer. He will come back a finer, truer, more tolerant American—a better citizen.

There is no expense involved, since the Government pays all expenses of transportation, uniforms, food, medical attention, laundry, etc. There is no obligation imposed on your son except the promise to go to camp, receive the training and behave himself.

While at camp for the thirty-day period, you have the definite knowledge that your son is in the hands of experts in the training of young men and that he is well cared for. Your son will be required to pass a critical physical examination, after which he will be informed by competent medical officers of any minor defects that may be removed or overcome by proper attention to the instructions they furnish. Your son will live for thirty days in an atmosphere permeated with the spirit of service to country and where the principles of truth, honor and good sportsmanship are instilled and taught by precept and example. Character building is the main objective of these summer camps, and your son will be taught without harshness or severity. Unconsciously he will be led into habits of obedience, promptitude, neatness and cleanliness of mind and body.

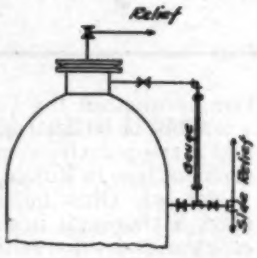
Short talks will be given your boy on such subjects as: "The meaning of Liberty," "Constitutional Government," "National Defense," "Independence," "Union," "Justice," and "Welfare." Round-table discussions, directed by competent officers, will be held on topics such as: "The Constitution and how it can be amended," "Our Government and how it functions," "What the Army does beside fight," "Obedience to Law—Police Regulations," "Fire Prevention," etc. Lectures, illustrated with slides or motion pictures, will be given your boy on: "Boston—the Home of Patriots," "Philadelphia—The Cradle of Liberty," "New York—The Gateway to America"; "Chicago—the Gateway to the West," "Washington—Our National Capital," "West Point—The United States Military Academy." Patriotic motion pictures, such as "Betsy Ross," "Is America Worth Saving," and "Powder River," will be shown.

You will be amazed at what thirty days of regular work, regular sleep, and regular play in the great outdoors will do for your son. It is YOUR privilege to enroll him.

Practical Helps for the Mill Man

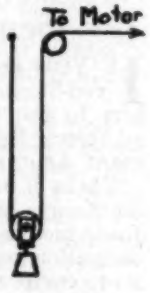
Digester Gauge Glass

DURING the filling of a sulphite digester with acid and also during the cooking process, it is often desirable to know the exact level of the liquor in the digester. For this purpose a gauge has been installed in the manner shown in one mill. This enables the digester cook to watch the liquor level during the cooking and guides him in relieving properly from the top and drawing off the same amount of liquor from the side each time he drains the digester.



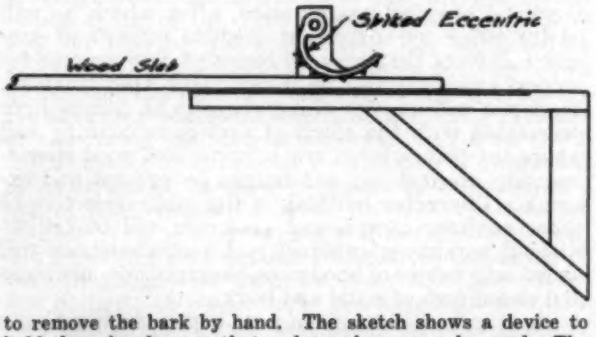
Keeping Wires on Roll Grinder in Place

DURING the operation of grinding a roll while the grinder with the motor carried on its frame, is traveling back and forth there is often some likelihood of the wire motor connections becoming caught or twisted and broken. The simple device shown, consisting of a weight attached to a pulley riding on the cable will keep them in position during the operation. This has helped materially in keeping the machine running with little attention to the motor connections.



Barking Wood Slabs

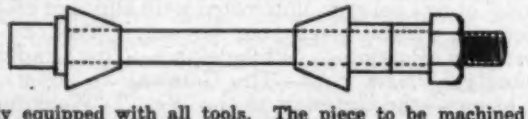
IN SOME mills where slabs from the sawmill are used for making pulp, the removal of the bark presents a problem. The only satisfactory method of thoroughly cleaning them is



to remove the bark by hand. The sketch shows a device to hold them in place so that a draw shave may be used. The slab is held under the spiked eccentric which catches it and holds it in place when pulled back. When pushed forward again it is quickly loosened and removed.

Cone Mandrel

THE cone mandrel shown in the sketch has been found to be of great convenience in the small machine shop not



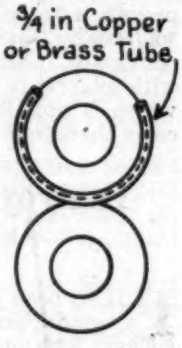
fully equipped with all tools. The piece to be machined is placed on the mandrel and is held in place by the cones and the nut on the end and placed in the lathe in the usual manner.

Baling Dry Sulphite Pulp for Shipping

IN BALING dry sulphite pulp to be shipped, the sheets of pulp are usually taken from the dryer and baled before they have time to cool. A high pressure is used to make the bale as small as possible so that it may be handled easily and take up a minimum amount of space. Following this custom, however, resulted in a high temperature in the loaded freight car and caused much sweating. It was also noticed that the pulp was somewhat off color. This condition was remedied by using the last two rolls on the dryer as sweat rolls by filling them with cold water cooling the sheets of pulp before they are baled and using less pressure in baling. The temperature of the loaded car was reduced to 70 degrees Fahr., sweating was eliminated and the color of the pulp improved.

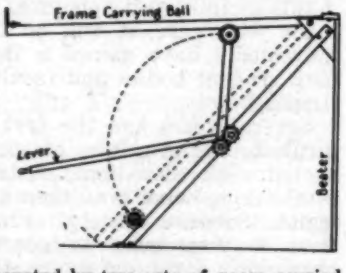
Safety Guard for Front Side of Size-tub Press or Smoothing Press

PASSING the sheet through the size-tub press or smoothing press is an operation in which it is very easy for the operator to have his fingers caught. In the sketch is shown a guard designed to prevent his hand being pinched while the paper is fed through these points. The guard consists of a piece of ¾ inch brass or copper tubing bent to a three-quarter circle of the same diameter as the roll and fastened to the roll bracket. This has the effect of making the roll on which it is placed about one inch longer than the other. Either top or bottom roll can be guarded with an equal effect, but it is easier to guard the top roll. It is immaterial whether the paper is fed through straight or in a reversed direction.



One Man Roll Lift

FURNISHING rolls of dry pulp to the beater usually requires two men to lift the roll and hold it in place on the edge of the beater while the sheet of pulp is unwound from the center of the roll. The sketch shows a comparatively simple device that is used to enable one man to lift the roll and hold it in position while the pulp is being drawn into the beater. A frame made of small angle iron holding the roll is raised and lowered by supports with rollers fastened on the end. These are operated by two sets of gears carried on another frame which is attached to the beater. The gears are turned by a lever attached to the pinion shaft, so that when the lever is pulled down the frame is raised up into position.

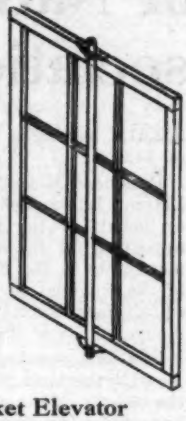


Slotted Shower Pipe for Washing Paper Stock

THE illustration shows a slotted shower pipe that has been of great benefit in washing paper stock. It is made of two inch galvanized pipe carrying ⅛ inch slots running the length of the pipe. The shower rests on the side of the washer and the midfeather and is placed just in front of the roll to turn the stream of water on the stock just before it goes under the roll. This gives even distribution of the water and results in better and quicker washing. Being slotted it is especially adapted for using white water.

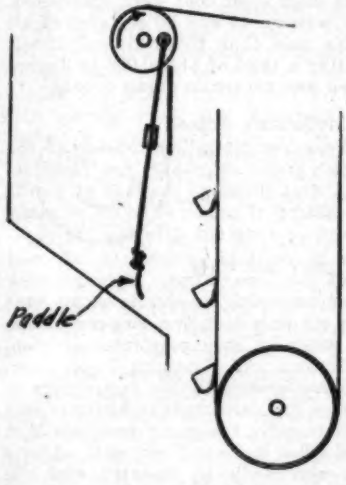
Windows for Sulphite Digester Room

THE windows in a sulphite digester room on the charging floor often present a problem in maintenance and repair. Particularly during the cold weather they come into frequent use, so it is desirable that it should be possible to open or close them quickly and easily. In the illustration is shown a method of attachment that answers the purpose very well. The window is held in place by a rod placed vertically in the middle of the opening. The window sash is attached to this by steel plates with holes drilled to fit over the rod so that it is free to swing around. By using this method of attachment, the window is easily opened or closed. It will stay in position and will not be turned by the wind blowing on it.



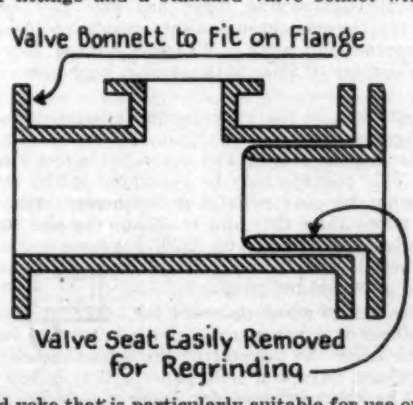
Delivering Wood Chips to Bucket Elevator

WHEN delivering wood chips into a bucket elevator from a chute making a ninety degree turn, it is sometimes difficult to make the chips run in just the right manner so that they are easily picked up by the buckets. In one instance, this trouble was overcome by attaching a small paddle which kicks the chips along into the elevator as fast as they pile up at this point. The paddle is attached to a rod which is fastened to crank on the extension of the shaft of the gear driving the belt conveyor carrying the chips to the chute. The rod slides up and down in a sleeve attached to the conveyor support. As the shaft revolves it gives the paddle a similar motion and if the chips have a tendency to pile up it shoves them along into the buckets.



Valve for Sulphite Digester

THE illustration shows the body of a rugged valve made up of fittings and a standard valve bonnet with outside screw and yoke that is particularly suitable for use on sulphite digesters. It is easily taken apart to grind the seat, replace the disc or make other repairs.



Automatic Safety Cutout

THE power plant of one mill includes one turbine equipped with a surface condenser and another with a barometric condenser. During certain periods when the water supply was low it sometimes happened that there was not enough water to hold the vacuum. To prevent over-loading the generator when this occurred and at the same time making unnecessary the shutting down of the entire mill, a device was installed to cut out from the switch board only sufficient power to compensate for the loss in vacuum. Contacts were attached to the vacuum gauges so that when the indicator went below a certain point a relay was operated which kicked out the wood room switch and allowing the two turbines to become equalized.

NEW CATALOGS, BOOKLETS, ETC.

American Manganese Steel Co., Chicago Heights, Ill.—Some of the successful applications for manganese steel casting are listed in the latest circular issued by this company, also a tabloid exposition of the character and peculiarities of manganese steel.

American Spiral Pipe Works, Chicago, Ill.—A new catalog of Forged Steel Pipe Flanges has just been issued. Exhaustive in the way the subject has been covered and of convenient arrangement, the catalog is primarily a handbook of valuable information for engineers, designers and operators of power systems. It is among the first complete publications to embody the new American Engineering Standards of 400, 600 and 900 pounds W. S. P. There are also complete data covering existing standards.

CoKal Stoker Corporation, 341 E. Ohio St., Chicago, Ill.—Specifications for Architects and Engineers is a bulletin prepared to give complete information to those concerned with specifying and installing semi-mechanical stokers under boilers. A table of chimney capacities gives both the diameter and height for capacities ranging from 23 to 6155 B. H. P., for diameters ranging from 18 to 144 inches, and for heights from 50 to 300 feet.

The Connersville Blower Co., Connersville, Ind.—A revised bulletin covering their smaller cycloidal rotary pumps has just been issued. In addition to the tables of sizes, capacities, speeds, etc., the bulletin describes the construction and design of these pumps.

The Jeffrey Manufacturing Co., Columbus, O.—New Catalog, No. 410, features a complete line of Standardized Bucket Elevators for service in industrial plants, coal yards, power houses, etc. The book is illustrated with pictures showing numbers of applications of bucket elevators, and tables and drawings give all the essential data for specification in ordering.

Layne & Bowler Company, Memphis, Tenn.—The Layne Patent Gravel Wall Well System is described and illustrated in a new folder issued by this company.

Plibrico Jointless Firebrick Co., 1130 Clay St., Chicago, Ill.—The new Plibrico catalog tells how monolithic linings should be installed, and describes the use of this lining for furnace fronts, arches, side walls, and bridge walls in boiler furnaces and for other miscellaneous applications.

Poole Engineering & Machine Co., Baltimore, Md.—"Do You Know How Poole Gears Are Made?" is the title of a new bulletin which describes and illustrates the Poole method of making machine moulded gears, and describes in detail how the high degree of accuracy for which Poole gears are noted is obtained.

Revolvator Co., 336 Garfield Ave., Jersey City, N. J.—Bulletin No. 76, "Combination Hand & Motor Portable Elevators" has been recently issued. The application of this valuable piece of mechanism is shown in a number of illustrations, principally in the handling of roll paper. A table of dimensions is also given for specification in ordering.

The "SC" Regulator Mfg. Co., Fostoria, Ohio.—Bulletin No. 500 has just been issued, wherein is given Twenty-six Principles or Rules Applying to the Drying of Paper. The distinctive points of the "SC" system and apparatus for paper machine steam circulation, air and water evacuation are listed and described.

A deep well, producing 1,200,000 gallons of water daily, has just been completed by the Layne-Texas Company for the city of Lufkin. The well is the largest in eastern Texas.

Annual Convention of National Paper Trade Association

ACCORDING to the "old-timers" present, there was a larger attendance at the twenty-second annual convention of the National Paper Trade Association in the Waldorf-Astoria Hotel in this city, on March 31-April 1 and 2, than ever before has been known at the yearly gatherings of the paper merchants of the country. Despite the fact that this was the first time in years that the association held its convention separate from the American Paper and Pulp Association, paper merchants from numerous parts of the United States journeyed to New York in record-breaking number and helped to make this year's get-together the most successful the National Paper Trade Association has ever staged.

At the general meeting of the association in the Astor ballroom of the Waldorf on the afternoon of Wednesday, April 2, J. A. Carpenter, of the Kansas City Paper House, Kansas City, Mo., was elected president for the ensuing year, succeeding William F. McQuillen, of Boston. J. C. Mallalieu, of George W. Millar & Company, Inc., New York City, was elected vice-president in charge of the Wrapping Paper Division, succeeding Mr. Carpenter, and A. M. Miller, of the Central Ohio Paper Company, Columbus, O., was elected vice-president in charge of the Fine Paper Division. K. S. Warner, of the John F. Sarle Company, New York City, was elected treasurer. The election of these officers was unanimous, a motion being carried that the secretary cast a single vote electing them to office.

The big ballroom of the hotel was well filled at the hour of 2 p. m. when the general meeting was scheduled. There was some delay in starting the session, however, owing to the absence of President McQuillen who was detained at a conference with Norman W. Wilson and Dr. Hugh P. Baker, president and secretary, respectively, of the American Paper and Pulp Association, over the date for next year's annual conventions of the two paper trade organizations. Secretary William C. Ridgway opened the meeting by submitting his report for the year, and after he had been reading a few minutes, President McQuillen entered the room, ascended the rostrum and took the chair.

Reports of Secretary and Treasurer

Secretary Ridgway reported that the outstanding feature of the association's work during the last year was the appointment of a Survey Committee and the activities of this committee. The Survey Committee was named for the purpose of looking over the entire activities of the association and to make suggestions for future activities. It was authorized by the Board of Directors and consisted of 24 members, with the association president and vice-presidents as members ex officio. Mr. Ridgway paid tribute to Arthur L. Stevens, of Detroit, Mich., who was chairman of the Survey Committee and who died two weeks after his appointment as chairman, and read a letter Mr. Stevens had written in which was shown his keen interest in the plans of the committee.

Secretary Ridgway reported that the association had made a net gain of 17 new members during the year, and that the membership now consisted of 384 members. He touched at some length on prevailing business conditions during the year covered by his report, and remarked on the close similarity of market conditions in 1924 with those during 1923. He stated that present indications were paper merchants would have no difficulty in securing supplies from mills in 1925 and that the tonnage of production would be at least on a par this year with last year. He closed his report by saying that profits to be realized by paper merchants would have to be derived from gross margins, and recommended that in some cases these margins be increased.

A. J. Corning, treasurer of the association, reported the organization to be in a very healthy financial state, total receipts for the year amounting to $56,636 and disbursements $52,412, leaving a balance on hand as of October 31, 1924, of $4,223.

President McQuillen then called on Leroy Latham, of the Latham Lithographing Company, Brooklyn, N. Y., who spoke on behalf of the Lithographic Technical Foundation, Inc., appealing for the moral and monetary support of the paper merchants to the Foundation. Mr. Latham told of the aims of the Foundation and cited several instances showing how education of similar character had been highly successful in other industrial lines.

The next speaker was W. F. H. Koelsch, president of the New Netherland Bank, New York City, who elaborated on the objects of the credit protection campaign which has been undertaken by the National Credit Men's Association, and asked for the support of the National Paper Trade Association. Mr. Koelsch stated that of the business failures reported by Bradstreet's last year 7 per cent were fraudulent, and that it was estimated between 40 and 50 per cent of all failures were tainted. He said that the National Credit Men's Association was raising a fund of $1,000,000 to finance the association to run down and prosecute credit crooks.

President McQuillen's Address

In his annual address, President McQuillen touched on the various problems with which paper merchants are faced today, and gave a good deal of attention to the lack of profits accruing from the merchandising of paper of which so many in the paper trade are given to complain. He said, in part:

"It might be well, after 21 years of activity, to call your attention to the growth of this association. Starting with only a president and a member acting as secretary, we have increased until we now have a president, two vice-presidents, each one of whom looks after his own particular division, namely, the Fine Paper Division and Wrapping Paper Division; a secretary who devotes practically his entire time to association work, many large and important committees who give much and loyal work to solve the many problems that arise, and a well equipped office in New York, with experts in charge of accounting, merchandising, research and efficiency departments for the benefit of the members, as well as a statistical department, and all connected with the association are working as hard and honestly as is humanly possible. We have a western office in Chicago that is well and ably handled. I particularly feel that we are all to be congratulated on the work of our secretary, who for so many years and through trying times has kept our association free from troublesome entanglements, which might have completely wrecked our work. We were indeed fortunate in having a secretary of this caliber, and in his hands our future is safe.

"The year 1924 in the paper merchandising branch, from the best figures that we can obtain, shows, as compared to 1920, to be less in dollars and cents but a little higher in tonnage. This perhaps may be accounted for by the buying public during the year satisfying their wants with a lower grade of paper than they did in 1920. As the tonnage of 1924 equalled the tonnage of 1920, I presume it might be called a normal year, the only thing abnormal about it being the lack of adequate net profit.

"Now the lack of adequate profit for as technical and intricate a business as paper merchandising is proving itself to be a fact that holds the interest of the paper merchant. The paper merchant buys and sells paper. This is his function, and when he charges more for doing this particular piece of work than is actually justifiable, at that very moment he is going to lose business. I believe there is a better and more scientific method of overcoming this trouble. A careful survey of all the elements that enter into expense would be advisable. Are your warehouses situated in a part of the city where you are paying more rent than the paper business will stand? Are you endeavoring to perform such a high

degree of service that you are taxing your business more than it would warrant? Are you stopping the minor leaks? Are you over-equipped or over-manned? Are you devoting too much time to the non-profitable side of your business rather than to the profitable side? Are you keeping books and accounts that will show you facts that you should know? All these and many other factors enter into the question, and a close analysis of each one's business might lead to improvements which would materially show in the net result.

"We often hear it said that orders coming into paper houses are so small that it is degenerating to what might be called 'drug store business.' Yet, in this connection, let me say that recently I read the financial report of one of the largest drug store concerns in the world which on a business of seventy millions of dollars made a gross profit of twenty-three millions, or about 33 per cent gross, and an absolute net profit of about five and a quarter millions or 7½ per cent. It is a well known fact that in the paper merchandising business, seldom if ever is a net of 5 per cent reached, from which Federal taxes must be paid. It might be said that if we have a 'drug store' type of trade we might even then learn some lessons from it in regard to net profits.

"For a long time past we have been hearing of the ills of paper merchandising. Paper merchandising in years gone by was a pleasant and profitable business—to be sure not one which produced large fortunes but nevertheless produced fair and adequate income. During the last few years the business seems full of troubles and tribulations which have created worry and turned the joy of work into irritation. With all the work that has been put in to alleviate our troubles we still seem to be in the midst of them. What is the answer? I have asked many in the trade that question and the consensus of opinion is that individual selfishness is the basis of the evil. As one put it, 'greed and selfishness and ignorance.'

"By way of an instance, some mill anxious for orders approaches a paper merchant with the proposition to buy heavily of his product, and as a reward for so doing, is willing to make any differential between white and colors. The merchant jumps at the proposition for it immediately enables him to put on the market a line of paper without a color differential whereby he expects to do all the business that there is in the country on this particular line of paper. But really what has he done? It took years of work on the part of conference committees to get at a proper differential between colored and white paper, and in the twinkling of an eye, this merchant who can only think of his own benefit destroys the good that others produced. Had the merchant accepted the manufacturer's proposition but in marketing his paper still applied the color differential he would have been considered a good buyer, but when he uses his advantage to the injury of all his fellow merchants he is nothing more than a plain pirate.

"I asked a manufacturer what was the matter with the paper merchant and the answer he gave me was certainly concise. It was: 'The paper merchants don't know what they want. They don't know how to go about getting it. They don't know what to do with it when they do get it, and they don't hang together.' This is an indictment to which we should pay some attention, and it could not be made if we worked more co-operatively and closely together.

"I have a feeling and have had it for some time that we ought to start a campaign to sell to the manufacturers the following principles:

"A—That as manufacturers of mill proprietary lines, we believe that they have an inherent and proper right to discuss with their distributors all problems concerning carloads, the less than carloads, the ton and the case, as these quantities are all original mill shipping units, and that the merchant is willing to listen to them in an interested and co-operative way.

"B—The problems on less than case lots and less than full package lots are really the merchants' because the minute you break a case or break a package you immediately enter the realm of expense and service. In the matter of mark-up on this class of business, the manufacturer should listen to the merchant in a very interested and co-operative way to the end that the merchant may properly be reimbursed for the service.

"As the matter now stands, the manufacturers are trying to regulate all problems, even down to and including the broken package, which principle I think is entirely wrong, and, as I view it, we ought to take immediate steps to correct it."

Manufacturers and Merchants on Separate Dates in '26

Following President McQuillen's address, Secretary Ridgway on behalf of the Board of Directors brought up the matter of the date for next year's annual meeting. It was quite evident a difference of opinion prevailed among the membership on the subject. Some wanted to meet at the same time the manufacturers hold their yearly convention in New York, as in the past few years. Others wanted the meetings on separate dates. President McQuillen reported that he had conferred with President Wilson and Secretary Baker of the American Paper and Pulp Association, and that these two gentlemen were very anxious that the merchants meet at the same time as the manufacturers. They suggested, President McQuillen stated, that the manufacturers hold their meeting on the first three days of convention week next February, thus leaving the last three days of the week for the merchants' meetings. Secretary Ridgway reported that the proposal of the Board of Directors was for the merchants to hold their convention on Monday, Tuesday and Wednesday following the week in which the American Paper and Pulp Association meets. After considerable discussion in which a good many of the members joined and during which President McQuillen made it clear he was in favor of meeting on dates separate from the manufacturers' convention, it was voted to approve the recommendation of the Board of Directors.

Resolution Concerning Import Classification Errors

The meeting then took up the matter of classification rulings on imported paper. The discussion on the subject waxed warm following the submitting of the following resolution by Jules Wolbrette, of the Southern Paper Company, New Orleans, La., which he urged that the association adopt:

"That the National Paper Trade Association of the United States, in annual meeting in the City of New York, April 2, 1925, goes on record as commending the Customs officials of the United States Government on their efforts to have importations of paper declared with proper designate terms, and also on their efforts to stop importations of paper at false values;

"It is further resolved that the National Paper Trade Association goes on record as deprecating the action of the Customs officials in appraising paper incorrectly by applying to importations such classification by name, as is not warranted by fact, custom, or usage in the paper trade;

"Be it further resolved that a copy of these resolutions be forwarded to the Treasury Department of the United States Government under whose jurisdiction the Customs Department operates."

This resolution was adopted but not before some objection to such action cropped up, some of the members pointing out that the action of the association in adopting it might be taken by manufacturers as opposing their efforts to enforce tariff regulations on paper imports and on behalf of the proper classification of imported paper.

Following the election of officers, the newly-elected president mounted the rostrum and thanked the members for the honor bestowed on him and requested their hearty co-operation during his regime as head of the organization. The two new vice-presidents also were called on and made a few remarks along the same line.

Hubert L. Carter, of Carter, Rice & Company, Boston, Mass., called for a rising vote of thanks to retiring President McQuillen and the other retiring officers.

Before adjournment, President McQuillen said: "I want to read this swan song: that I warmly appreciate the obligations that I owe to you gentlemen and I rejoice in the expression of confidence and friendship I have received from you so often. I wish you, my fellow paper merchants, all the best there is in life."

Fine Paper Division Meeting

A. M. Miller, of the Central Ohio Paper Company, Columbus, O., presided at the annual meeting of the Fine Paper Division of the National Paper Trade Association on Wednes-

day morning, April 1. In his address Mr. Miller told of the developments and the problems in the fine paper market during the last year. A speaker at the meeting was Richard H. Lee, a director of the Direct by Mail Advertising Association, who told of the strenuous fight his organization made in Washington against some of the revisions in the postal schedule. Before adjourning the meeting passed a resolution extending sympathy to the Zellerbach Paper Company, of San Francisco, Cal., over its severe loss caused by a disastrous fire.

Wrapping Paper Division Meeting

Vice-President J. A. Carpenter presided over the annual meeting of the Wrapping Paper Division on the afternoon of April 1. Mr. Carpenter reviewed the work done by his division during the year and expressed the belief that more had been accomplished within the year than in any similar period during the life of the association. Mr. Pape, statistician for the division, reported on the statistical position of the wrapping paper industry, and C. K. Higgins reported for the Executive Committee of the division. Thomas F. Smith, of Louisville, Ky., former president of the association, spoke on problems confronting the coarse paper trade. The next speaker was C. R. McMillen, of the Union Bag & Paper Corporation, who made a very interesting address on various phases of the bag and coarse paper business.

The Annual Dinner

The twenty-second annual dinner of the National Paper Trade Association was given in the grand ballroom of the Waldorf-Astoria on the evening of April 2 and brought to a close the successful three-day convention of paper merchants in a fitting manner. As is usual, the fair sex were present in goodly number, almost half of the 500 or more diners being the wives or sweethearts, and perhaps a few sisters, of the paper merchants and manufacturers at the dinner.

During the serving of dinner an orchestra on the stage played many popular and old time selections, and after dinner an excellent vaudeville show was put on. The performers were all from the Keith vaudeville circuit, and among the novel acts was that of a mental telepathy expert by the name of Dunninger. Ruby Norton, the well known vaudeville star, sang several songs in her own entertaining style. The vaudeville lasted until midnight when there was dancing in the ballroom.

An event in connection with the convention was a gala evening at Brown's Chop House on Wednesday, April 1, arranged by William E. Ebbets, general manager of Coy, Disbrow & Company, New York, and J. C. Mallalieu, of George W. Miller & Company, Inc., New York, at which the attendants were paper merchants who distribute the Racquette River products, the converters who make envelopes from their papers and others interested in the sale and manufacture thereof.

It was announced at the convention that the Fall meeting of the association will be held in Chicago.

The French Paper Convention

An Outline of All Papers Presented at the First Convention of La Cellulose

By A. PAPINEAU COUTURE

IN 1911, the graduates of the French School of Paper making of Grenoble organized themselves into an association which they called "La Cellulose." From the very beginning it thrived and proved its vitality and usefulness. One year after its foundation it started publishing a quarterly bulletin, began building up a library for the benefit of the members, established an advertising committee, and carried on various other activities in the interests of the members.

When the war broke out in 1914, every member of the association was mobilized, and more than half of them never came back. The remaining members, however, set to work reorganizing the association, and after overcoming a number of difficulties fully succeeded.

In June, 1924, they held their first convention, which was highly successful, and it is hoped to make this an annual function. A large number of very interesting papers were presented by members of the association, as well as by competent authorities amongst the builders of paper making equipment and some well-known foreign authorities.

The October, November, December and January numbers of the Association's official organ, Le Papier, are given up entirely to the papers presented at the convention; and it is interesting to note that these four numbers are printed on eleven different grades of paper supplied for the purpose by several of the large French paper companies.

These papers make interesting and profitable reading, giving an insight into the problems confronting the French paper industry, which are in many respects similar to those of paper makers on this continent. We cannot reproduce them in full, but give herewith a brief outline of all of them.

Ruth's Accumulator in Fuel Economy

Fuel economy is even more important in France than it is here, for the home supply is not sufficient to fill the demand, and a considerable amount of coal is imported. M. Marchand, of the Schneider Co., showed how fuel consumption could be appreciably reduced by means of the Ruths steam accumulator. This subject has been recently discussed in a very thorough and able manner at the annual convention of the Canadian Technical Section, and treated comprehensively in the last issue of THE PAPER INDUSTRY; therefore, it need not be gone over again. A point deserving of attention, however, are extracts of reports comparing operations in a number of pulp and paper mills before and after the installation of the accumulators. In every case the accumulator resulted in much more uniform firing conditions, which in turn meant higher efficiency, lower fuel consumption (reductions of 15 to 23 per cent are noted), and more uniform operating conditions in the mill as a whole. In a 10,000-ton sulphite mill an increase of 8 per cent in the output of the mill is attributed to the installation of a Ruths accumulator.

Chestnut as Pulp Material

L. Vidal studies the micrographic characteristics of chestnut pulp, which is used to a very limited extent for the production of pulp which is used as a filler, and he arrives at the conclusion that this wood is practically useless for paper making.

Use of Lime and Sodium Sulphate in Straw Pulping

Maurice Brot, professor of chemistry at the School of Paper Making, has started some preliminary work on pulping with a mixture of lime and sodium sulphate. It is a well known fact that sodium sulphate can be caustified by lime at high pressures. On the other hand, sodium sulphate occurs abundantly and is widely distributed in nature, and is also a troublesome by-product of a number of industries, more particularly in the form of niter cake ($NaHSO_4$) obtained in the manufacture of nitric acid from Chili saltpeter.

Four series of cooks were carried out on high grade rye straw, using lime only, mixtures of lime and sodium sulphate in various proportions, mixtures of lime and sodium car-

bonate in various proportions, and various amounts of caustic soda. They were carried out in a 250 cc. steel autoclave, heated externally in an air oven which could be heated to 200° C. and regulated to about 2°. As cellulose begins to decompose with evolution of gaseous decomposition products at a temperature of about 200° C., the tests were carried out at a maximum temperature of 180° to 185° C., corresponding to a pressure of about 130 to 135 pounds per square inch.

With 30 per cent of high grade lime, the straw gave yields of 66.5 per cent pulp, and with careful temperature control the results could be duplicated to within 1 per cent.

Treating 10 g. of the straw with 3 g. of lime together with from 5 to 120 g. of Glauber's salt ($Na_2SO_4 . 10H_2O$) gave yields of 63 to 40 per cent of pulp, with a minimum yield of 38 per cent with 80 g. of Glauber's salt, showing that the presence of a large excess of sodium sulphate has a tendency to reduce somewhat the action of the caustic formed by action of the lime on the sodium sulphate at high temperature. Presence of a small quantity of calcium sulphate, on the other hand, does not seem to have any appreciable effect on the results. On the whole, the pulps obtained in this series of experiments proved very difficult to bleach by the usual bleaching process.

The cooks with lime and soda ash and with caustic soda alone were carried out for purposes of comparison. They showed that equivalent results were obtained with 3 g. of lime and 20 g. of Glauber's salt (55.5 per cent yield), 3 g. of lime and 0.7 g. of soda ash (56.5 per cent yield), and 1.45 gram of 70 per cent caustic soda (55 per cent yield).

Tests carried out on a commercial scale would probably give a much easier bleaching pulp, because the cooking liquors would be at a higher concentration than could be used when working on such a small scale. Of course the commercial application of such a process would require an abundant supply of very cheap sodium sulphate; but this could doubtless be found without much trouble in numerous places.

The Work of the Beater

Beating is carried out with a view to imparting certain properties to the stock, and as a rule the paper maker is satisfied if he gets the kind of stock he needs, irrespective of the manner in which it was obtained. But with a given beater the desired results can usually be obtained in more than one way, and it is a matter of considerable importance to know what are the most economic and efficient conditions from the double standpoint of power consumption and of time required.

F. Paul gives a method whereby the optimum conditions can be determined. The essential requirement is a beater driven individually by an electric motor. An integrating wattmeter and an indicating and recording ammeter are suitably connected in the motor circuit. There are two essential variables, time and the roll pressure (which is directly responsible for the load on the motor). Paul proceeds to keep one of these factors constant, the load, which he accomplishes by manipulating the roll in such a way as to keep the amperage constant at a predetermined value. Under these conditions he periodically takes samples of the stock and tests them with a Schopper freeness tester until the required degree of beating has been reached. This is repeated with the motor running at other predetermined amperages, and the total power consumption is plotted against the amperage in the respective tests. The resultant curve is found to have a minimum point, and this point corresponds to the most economical beating conditions.

Of course, it is necessary that the stock should always have the same freeness when charged into the beater, and the curves obtained will naturally vary according to the grade of paper, the nature of the raw materials, and the individual beaters used. The accumulation of data for making these curves requires long and tedious work; but it is worth while going to the trouble which it involves, as the application of the results will not only reduce power consumption but will also enable the mill to turn out a more uniform product. Another advantage is that careful study of the diagrams of the recording ammeter will give valuable indications as to the condition of the beater roll.

The author suggests that beater manufacturers might profitably make use of such system to show and guarantee the performance of their machines.

Dandy Roll Construction and Use

V. Bouyer gave a very interesting description of the manufacture of Dandy Rolls, going into considerable details respecting the various kinds of dandies and their use in paper making.

The Development of Pasting Machines

Maurice Cartiaux, Jr., followed the development of pasting machines, from the time the first of these machines was put into operation at the Papeteries et Cartonneries de Coninck, near Brussels, in 1883, right down to the modern pasting machines.

The Manufacture of Filter Mass

G. Bonnet dealt with a specialty, the manufacture of which is but little known in America, namely, filter mass. The chief outlet for this product is in the brewing industry, where it is used to clarify the beer after fermentation. Specially designed filter presses are required, the compartments of which are filled with filter mass, and the beer is passed through them under a pressure of about 0.6 kilos (about 8 pounds per square inch). Before the war the Germans had a virtual monopoly of the manufacture of this article, but by dint of hard work the French paper makers succeeded in turning out a satisfactory product.

This material must be very white, soft, flexible, elastic, and yet strong. It should filter rapidly; but it must hold back all substances which cause turbidity or cloudiness in the beer, and at the same time it must allow the organisms to which is due the flavor of the beer to pass through. It must be free from all taste or smell. When mixed with water it should disintegrate quickly and easily, without formation of lumps. The individual fibers must be strong and fairly long; for if they are beaten short they are partly carried off by the filtered beer.

Chemically, filter mass must be free from starch, which would make the beer gelatinous and opalescent, and also from the least trace of metallic particles, especially iron. It must be inert towards all the substances with which it comes in contact. The ash and ether extract should also be as low as possible. One of the most important points is that the mass should be aseptic, so as to avoid contaminating the beer, which is exceptionally sensitive to the action of microorganisms.

As in the case of filter and high grade blottings, the only really satisfactory material is cotton; and it is preferable to use either new white cuttings of such materials as underwear and light-colored calicos, or else worn, clean, white rags. It is particularly important that the rags be stored in a covered, well ventilated and dry place; for dampness can easily cause the rags to acquire a bad smell which it is almost impossible to get rid of.

The rags are cooked with either soda ash or caustic soda, according to their cleanliness, the former being milder and retaining the strength of the fibers better than the caustic, which, on the other hand, facilitates the production of a loose-textured, fast-filtering mass. Soda ash and lime should not be used, because the calcium carbonate precipitated on the fibers decreases the filtering power and increases the ash content. The boiled rags should not be allowed to "rot," on account of the repulsive odor which develops and also because of the possibility of development of cryptogamic organisms which might not be completely eliminated in subsequent operations and would have a disastrous effect on the keeping qualities of the beer as well as on those of the filter mass itself.

The stock should be beaten long and free, with bronze tackle and in tile-lined beaters. About one per cent of caustic soda may be added in the beater so as to make the stock softer. If any starch is present, it can be destroyed by adding a little malt diastase which will convert the starch into soluble sugars. Bleaching is carried out in the cold with very carefully screened bleach liquor, and no acid is used so as to prevent precipitation of lime salts on the fibers. The bleach consumption should be kept low (less than 5 per cent) in order to retain the softness and flexibility of the stock. With very clean rags, it may be possible to bleach economically with potassium permanganate, which gives exceptionally fine results.

Washing is carried out with a 60-mesh wire drum, which

allows any small fibers which could be carried away by the filtrate when the mass is used, to pass out with the wash water.

A cylinder type of drying machine is preferable to a Fourdrinier, and loft drying should be resorted to, because drying overheated rolls causes the fibers to contract and makes them lose a considerable proportion of their filtering power. It has been found that the absorbency and filtering power can be increased by allowing the wet pulp to freeze. The ice crystals burst open the fibers, and the pulp acquires a loose, open texture, which facilitates filtration, while its strength is not seriously impaired.

Rubber and Its Applications

J. Rollin gave an interesting paper on "Rubber and Its Applications in the Paper Industry," in which he described the methods of manufacture of various rubber articles used in the paper industry, such as paper machine aprons, deckle straps, press roll coverings, belts, printing rolls, etc., and also dealt with care required to insure their proper preservation.

Utilization of Exhaust Steam

Emile Huc dealt with the time-worn but all-important subject of "The Rational Utilization of Exhaust Steam." He first discussed the different cases which can arise and the most economical solution to obtain most efficient utilization of the available energy of the steam, and then he proceeded to discuss the various machines and auxiliaries suitable for the purpose.

Papermaking Dyes

Professor Favier, of the School of Paper Making, gave a description of the chief properties of acid, basic, eosin, direct, sulphur and pigment dyes, from a paper-making standpoint, together with brief notes on some of the more important dyes of each group.

The Care of Screens

Ernest Lamort, a well-known manufacturer of pulp and paper making machinery, gave a general discussion of the requirements of a good screening system and of the care required and factors to be considered in designing and choosing a screening installation.

The Theory of Dispersion

H. Micoud gave an interesting explanation of the theory of dispersion (which is practically the same as probability of error), and showed by three examples taken from actual manufacturing practice how it can be used to control variations in the weight of the paper as it is delivered to the consumer. In the examples chosen, the average weight of one of the papers was practically equal to the nominal weight and only 2 per cent of the lots fell outside the tolerance of the code. The second paper showed some divergence between the average and nominal weights, and quite a few of the lots fell outside the tolerance; while the third paper, which was a coarse wrapping, showed up very poorly. A proper analysis of these results can help considerably in correcting the causes.

Instantaneous Variations in Weight of Paper from Machines

Another good paper by the same author dealt with the "Instantaneous Variations in the Weight of Paper Coming from the Paper Machine." The method of investigation consists in taking a strip of paper the full width of the sheet as it comes off the machine, and of suitable length, dividing it into a large number of equal squares marked so as to be able to identify their positions on the sheet, weighing the squares, and plotting the weight of the squares against both longitudinal and transverse distances from the edge of the piece taken. The method, though long and rather tedious, can frequently detect machine defects and improper adjustments, which might otherwise pass unnoticed for a considerable time.

The Gaillet Decantation Save-All

The Paul Gaillet decantation save-all was described and discussed by the inventor. The apparatus consists essentially of a cylindrical or rectangular tank of large cross-sectional area, through which the white water passes upwards. The tank is filled with pyramid-shaped surfaces, each element having six triangular faces and being made by bending upwards the four corners of a rectangular sheet of metal and bending the sheet backwards in the middle. These surfaces hinder the rise of the suspended matter in the white water and help to agglomerate the fibers and fillers into small masses sufficiently dense to settle out in spite of the upwards current of white water. The save-all is claimed to give a perfectly clear effluent, and to have been used successfully even for the separation of oil from steam.

Power Reduction in Material Handling

R. Isnard made a thorough analysis of the handling of materials both outside and inside the mill, pulping, beating, paper machines, pumps, prime movers, and mechanical transmissions, from the standpoint of reducing power consumption to a minimum and obtaining maximum efficiency.

A Description of Cellulose by Prof. Klason

In discussing the definition of the substance which is generally known as cellulose, Professor Klason, of Stockholm, the well-known authority on the chemistry of wood, briefly reviewed Renker's work on the various methods of determining cellulose. He then described his own experiments on the isolation of cellulose by means of sulphurous acid solutions at temperatures of not over 100°C. These lead him to conclude that wood contains two forms of cellulose, a more resistant form (Cellulose I) practically identical with so-called alpha-cellulose, and a less resistant form (Cellulose II) corresponding perhaps to beta—and possibly gamma—cellulose. In uninjured fibers the two forms are so disposed that I protects II to a great extent from being dissolved by strong acids; but when the wood fibers are crushed Cellulose II is more or less dissolved by strong acids.

Pine wood apparently contains 47 per cent of cellulose I and 7 per cent of Cellulose II, of which 1.5 per cent is dissolved by strong acids when the fibers are uninjured. In cotton and linen the two forms are disposed so that II is not protected by I; and cotton apparently contains less of I (about 90 per cent) than flax (95 per cent). Cellulose in uninjured bleached sulphite fibers behaved the same as in wood.

Scientific Control of Raw Materials

Jacques Crolard, manager of the Central Paper Laboratory in Paris, discussed the importance of scientific control of raw materials, manufacturing processes and finished products iin the paper industry.

Quantitative Determination of Sulphite and Groundwood in Paper

The importance of the quantitative determination of sulphite and groundwood in paper, especially in such grades as newsprint, was brought out by Dr. Halse, who recommended the following method for the determination of lignin as being suitable for mill control work. Weigh 1 g. of oven-dry paper into a wide neck, glass-stoppered bottle and add 50 cc. of 38 per cent hydrochloric acid. When the paper has been wetted completely by the acid, add cautiously 5 cc. of concentrated sulphuric acid. Let stand overnight at room temperature, shaking at intervals during the first few hours. Dilute the contents of the flask with water, transfer to a 750 cc. beater, wash to a volume of about 500 cc., boil for a few minutes, and let stand till the lignin settles out. The supernatant liquid is then decanted off, taking care not to lose any of the liquid, and the residue is filtered on to an alundum crucible, washed thoroughly with hot water, and dried at 100° C. to constant weight. If the paper contained filler, the residue must be ignited, and the "pure" lignin is then obtained by difference.

With newsprint, which consists only of groundwood and sulphite, the per cent of groundwood is given by the formula $\frac{100\ (L-c)}{T-c}$, where L, T and c are the "pure" lignin contents of 1 g. of the paper, of the groundwood and of the sulphite, respectively. The average of a large number of closely agreeing analyses of news grade groundwood and sulphite gave $T = 0.266$ and $c = 0.030$ g. The accuracy of the results is affected by variations in the lignin, moisture and ash contents of the sulphite and groundwood; but in spite of that the method is considered more accurate for the analysis of newsprint than the microscopical methods.

A System of Analysis of Mill Conditions

A Ruby, editor of Le Papier, treated in a masterful way of the means by which manufacturing efficiency can be im-

proved and waste products utilized. After first discussing in a general manner the importance of the subject from the triple standpoint of the nation, the mill and the workers, he described the general system of investigation to be followed in analyzing mill conditions, effecting the improvements found necessary, and getting the results expected of the improved equipment or process. He then described at considerable length the application of this system to the problem of reduction of fuel consumption in the paper mill.

The Properties of Cellulose

R. Michel-Jaffard, chief chemist of the Papeteries de France, whose recent work on the pulping of Bordeaux pine has attracted considerable attention, reviewed the properties of celluloses from different sources, such as cotton, wood, grasses, etc., and isloated by different processes, including soda, sulphite, sulphate, chlorination, etc.

Description of the Kestner Evaporator

M. Serve-Briquet, of the Kestner Co., builders of evaporating equipment, described the evaporator designed by his company for concentrating spent sulphuric acid from parchmentizing plants. The old-fashioned open pan, cascade concentrator is rapidly being superseded by the modern type of equipment. This is essentially a film type evaporator, constructed of special acid-resisting metal. Its advantages are: low fuel consumption, no scaling with calcium sulphate, small floor area required, low labor costs, 100 per cent recovery of the acid, no troublesome and dangerous acid fumes.

Properties of Sulphite Pulps Cooked by Various Methods

Mr. Bergoo, of Sundswal, Sweden, discussed the properties of sulphite pulps produced in vertical, horizontal and rotary digesters, by both direct and indirect heating, showing the reasons for the differences observed in the quality of the various pulps. He concludes that best results are obtained with forced circulation of the liquor, which is drawn off at the top and pumped back into the bottom of the digester, and that ultimately all digesters will probably be equipped for forced circulation.

Work of Central Industrial Laboratory of Finland Described

Dr. John Palmen, of Helsingfors, Finland, described the organization of the Central Industrial Laboratory of Finland, of which he was the first manager. This was organized in the form of a limited company at the general industrial convention held at Helsingfors in March, 1916, with a view of helping the various Finnish industries to solve their respective chemical problems. The wood industries are by far the most important in Finland, and it is not surprising that well over half of the work of the Laboratory should have been for these industries. Some of the more important work carried out by the Laboratory in this connection is outlined by Dr. Palmen.

Calender Drives

M. Misserey, of the Thomson-Houston Co., discussed the requirements of calender drives, and showed the different manners in which these requirements could be met by means of electric drives.

Discussion on Hydraulic Valves

Maurice Guillaume described the various types of hydraulic valves most generally used in the water lines of hydro-electric power stations, and discussed their relative merits and disadvantages.

Controlling Electric Drives

V. Sylvestre gave a very detailed description of the Brown Boveri quick-acting power regulator and showed how it could be applied to advantage for controlling electrically driven grinders and electric paper machine drives.

The American Pulp and Paper Mill Superintendents' Association will hold their annual convention in Niagara Falls on June 4, 5 and 6, 1925. An elaborate program is being prepared.

Using Dissolved Alum in the Beaters*

By W. H. SCOTT
The Duriorn Company, Dayton, O.

THE practice of feeding alum to the beaters in the form of a solution is not new with manufacturers of the finer grades of paper, since the advantages are so apparent. But mills making the heavier grades of paper and those requiring no bleaching have not, perhaps, given this important matter the attention it deserves.

We believe it is an accepted fact that in order to make a satisfactory writing or tinted paper, alum must be introduced in the beaters in the form of a solution rather than a powder or lump, in order to get a satisfactory product; and there are some superintendents of board mills who have found that, in order to get the best results, the use of dissolved alum in the beaters is a practical necessity.

On more than one occasion, our attention has been called to specific cases where a board mill was having trouble with spots which apparently had been caused by particles of undissolved alum which had become coated with rosin size, and the inclusion of which in the product proved very objectionable. The trouble was eliminated by first dissolving the alum thoroughly before introducing same in the beaters.

We do not profess to know the fine points of the manufacture of paper, but we are interested in anything that promises an improvement in present processes and practices. Being manufacturers of paper mill equipment, we, of course, come in contact with a great many paper mills and paper mill superintendents, and what we have to say is in the main a presentation of facts and figures collected in our contact with the industry.

There are scores of mills that have found it to their advantage to discontinue the use of dry alum in the beaters and are now introducing alum as a solution. Many of these mills kept a record of the cost and amount of alum they used to get certain results while feeding dry alum, and after putting in an alum dissolving and handling system, they were careful to keep detailed cost sheets and compared the two sets of records. From these records, the following points in favor of dissolved alum stand out very clearly:

1. Labor saving; 2. Space saving; 3. Improved beater room conditions; 4. Elimination of: (a) Impurities, specks, spots, etc., in the finished product, and (b) More uniform color in tinted stock; 5. Improved behavior of the paper on the machine, particularly regarding breakage and smoother passage over rolls; 6. More perfect precipitation of size in the beaters; 7. Saving in alum used.

The Duriron Company has given considerable thought to the mechanical features of a satisfactory system for dissolving and handling alum, and the diagrammatic view (Figure 1) which we show covers a complete Duriron installation that is both convenient and efficient, and is absolutely proof

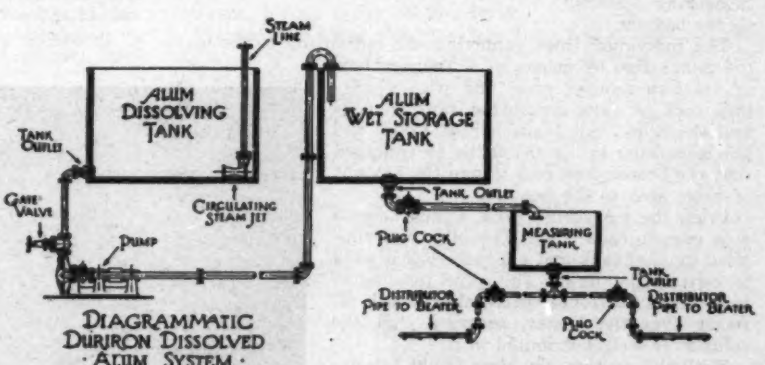


Figure 1

against deterioration when handling alum solution. This solution is very corrosive and has a tendency to build up and clog pipe lines. As said, Duriron is guaranteed not to be

*Presented at the meeting of the Western Board Division of the American Pulp and Paper Mill Superintendents' Association, held in the Park Hotel, Monroe, Mich., February 20, 1925.

attacked by alum, and we have never heard of a case of a Duriron line handling alum that gave trouble from stoppage.

The answer to the first four points is in the mechanical equipment used, and the layout of the system, as shown in Figure 1, which we will explain in detail.

Dissolving Alum

The tank for dissolving alum should if possible be convenient to the point where it is unloaded from the car. This tank is fitted with a circulating steam jet which causes a violent agitation of the water in the tank and rapid dissolving of the alum. This jet does not pound and so has no bad effect on the tank. The alum is thus quickly reduced to a solution containing from one to three pounds alum to the gallon, as may be required. By a tank outlet and connecting line the tank is connected to a centrifugal pump, or an ejector (where the latter is adequate), and by this means the alum solution is elevated to a storage tank. The piping from dissolving tank to pump is 2-inch flanged, and from pump to storage tank, 1½-inch flanged.

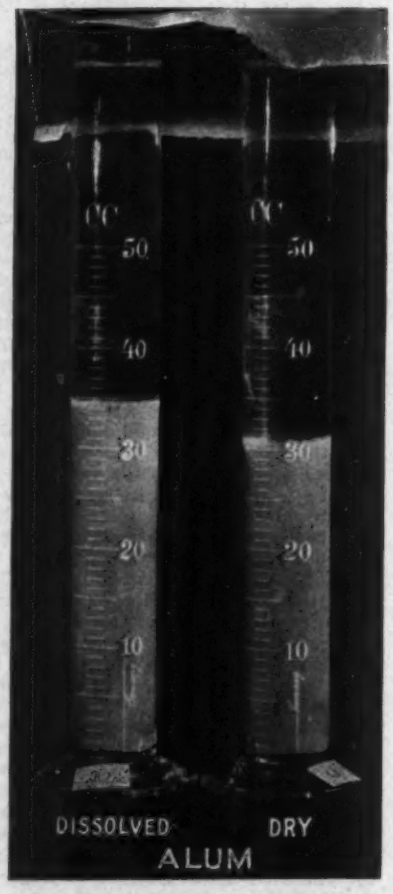


Figure 2

The storage tank should have capacity sufficient to supply the beaters for 24 hours. From storage tank the solution is handled in a 2-inch caulked pipe line, through measuring tanks, to the beaters.

The individual lines supplying the measuring tanks leave the 2-inch line by means of a Tee, and are of 1½-inch flanged pipe, and with a 1½-inch cock at each measuring tank to control the flow. All tanks are of wood, and the measuring tanks should be so equipped that the beater man may gauge the amount of alum sent to the beater.

From the measuring tank, 1-inch flanged pipe runs to each beater (usually two) supplied by that tank and a 1-inch cock is used to control the flow. This pipe terminates in a 3-foot horizontal perforated length directly over the beater, assuring that the solution is well distributed in it.

With this system, the alum is put in solution at a single point, and a minimum amount of labor and attention is required to fill the dissolved alum storage tank each day. The beater man then has only to turn a handle to operate the control cock, and so to furnish the beater with exactly the proper amount of alum.

This system requires no space on the beater room floor, as the equipment is hung from the ceiling. There is no alum dust nor waste in the beater room. The bag waste, dirt and other impurities in the alum settles out in the storage tank, so that this source of spotting and speckling is eliminated.

So far we have dealt with the mechanical features, and we believe the advantages may easily be recognized by any operator.

Lessening of breakage and smoother running over the rolls are due to the fact that dissolved alum effects a more perfect precipitation of the size, and in order to see why the rosin size is more perfectly precipitated, and why there is a considerable saving in the amount of alum used, we must approach the matter from a chemical standpoint.

First, it would be well to define exactly what size is. For our purpose it may be considered as any substance which is added to pulp to fill up the pores between the fibre of the paper and the filler. The object of this is, of course, to give a good writing surface, and to prevent the spreading of ink or moisture of any kind by capillary attraction. Naturally size requirements vary, but under all conditions the result desired is to get the substance that gives the smoothest and most complete filling up of the pores with the least amount of material used.

The use of dissolved alum for precipitating rosin size tends to give a larger volume of material and also, due to the fact that the precipitate formed is much finer, it tends to more completely fill up the pores and give a smoother surface.

These facts are demonstrated by Figure 2, which shows the comparative volume of precipitate obtained with two equal amounts of alum, dissolved alum being used in test "D" and dry alum in test "U," and photomicrographs (Figure 3) of the two precipitants.

Chemical Reaction in Size Making

With these before us, let us consider the chemical reaction which takes place in the manufacture of size.

Rosin is a material obtained from crude turpentine, and it has the qualities of a weak acid and will combine with any alkali to form a compound known as a resinate or rosin soap. In the manufacture of size for paper, the alkali usually used is soda ash so that the soap obtained is a sodium soap. This sodium soap is soluble in water and, although the reaction between the rosin and the soda ash is not complete, yet the greater part of the product of this reaction is this sodium soap. Usually an appreciable amount of soda ash and free rosin is also present. When the alum, either powdered or in the dissolved form, is added to this sodium soap, another chemical reaction takes place, the product of which is an aluminum resinate or soap, together with a certain amount of aluminum hydroxide. Both of these are practically insoluble in water, and in the beater this precipitate mixes with the pulp and later tends to fill up the pores in the paper, as mentioned above.

It will be readily seen that the finer and more flocculent

Figure 3

this precipitate is, the smoother the paper will be. Also, the larger the volume of the precipitate, the greater the result. To show this, we had made up in our laboratory two precipitates. A sodium resinate was used, manufactured from a rosin similar to that used in the paper industry, the grade being that known as "F." This rosin was then saponified with chemically pure soda ash in the same proportions as that used in the manufacture of paper; that is, in the proportion of 100 parts by weight of rosin to 20 parts by weight of sodium carbonate (soda ash). After diluting this size, 10 cc. of the diluted solution were placed in each of two 500 cc. flasks which had previously been partly filled with distilled water.

The alum was then added to these solutions, in one case dissolved alum being used, and in the other case powdered alum, equal amounts being used in each case. After the precipitate had formed, the volume of the precipitate was measured by allowing it to stand in two cylinders, and the results of this test are shown by the photograph (Figure 2). Dissolved alum being used in test tube "D" shown on the left and dry alum being used in test tube "U" shown on the right.

A small portion of each of the precipitates formed were also placed under the microscope and magnified to seventy-five diameters, and these results may be seen in Figure 3. You will notice that the photograph shows the much finer nature of the size precipitated with dissolved alum, and you will also notice in the picture of the precipitate made from the undissolved alum that there are small inclusions of crystalline alum surrounded probably by a protective coating of the precipitate. It is due to this tendency of the precipitate to form as a protective coating on each little granule of alum that an appreciable per cent of the alum added to a beater in the undissolved form is wasted, since this alum, being heavier than the mass of pulp in the beater, will sink to the bottom and be carried over to the catch-all.

From our experience with the paper industry, we are thoroughly convinced that the cost of an alum dissolving and handling system is an excellent investment for a mill running on almost any grade of paper, and one that the superintendent will find yields a big return in the shape of an improved product, improved working conditions for his help, and giving him an accurate and reliable control of his alum supply to meet varying conditions.

New Developments in Drying Heavy Boards

By H. R. MASTERS
Special Engineer, The Coe Mfg. Co., Painesville, O.

THERE is a growing interest in the manufacture of special heavy boards from one-eighth to one inch in thickness, principally from waste materials, or materials not used for the better grades of paper. While not a new idea, as there are a number of firms engaged in this line, the developments of the last few years have been very striking. The demand has also kept ahead of the supply, so the prices have stood up much better than corresponding prices on paper.

Most of these heavy boards are used in building constructions, as insulation, sheathing, wall board, stucco base, plaster base, roofing, sound deadening, acoustical correction, etc. A considerable percentage, however, is used for industrial purposes. It might appear that this field is limited, yet such is not the case, as new uses are being discovered daily. Also special boards are being developed by resourceful chemists and engineers, which are actually superior in many respects, such as weight and strength, to wood. The writer believes that only the surface has been scratched as yet, and feels perfectly safe in predicting a much larger expansion in this field. The opportunities in the south for the utilization of southern pine, mill waste and cheap timber, appear especially promising.

Such boards can not be economically manufactured by the regular paper mill machinery or methods. Special machinery is required to reduce the material to a long fibre, and form it into a board, as the regular wet end or cylinders of a paper machine cannot be used. Finally, thick sheets cannot be passed over the regular paper machine dryers, so must be dried by special machines or dryers. Hence this is really a special or new branch of the paper industry.

The oldest method of forming thick boards is in laminations on a wet machine, such as the Rogers, for pulp, fibre, binders board, etc., each board being cut from the cylinder after it reaches the required thickness. Some of the water may be then removed by hydraulic pressure, and the remainder in a special dryer or dry room. This process is in use by a large number of Eastern concerns usually of small capacity, as this is more or less of a hand or batch proposition, and ten tons daily is a big production.

The new method is the continuous proposition, by which boards may be formed continuously of practically any thickness from such materials as wood pulp, sulphite and ground wood screenings, corn stalks, flax, bagasse, sea weed, and other fibres. These fibres are first subjected to suitable preparation such as shredding, cooking, or beating, which are well known to the industry. Special wet machines have now been designed, usually consisting of two wire mesh cylinders revolving against each other, which will pick up continuously the required thickness of coarse fibre. The sheet is formed at a relatively slow speed, and containing 60 to 75% water, some of which may be removed by suction or squeeze rolls, however, before going to the dryer.

The width of these sheets may be from 8 to 12 feet, or even more, and the speed up to 20 lineal feet per minute, depending on the thickness. To take a concrete example, in one plant a ½" sheet 12 ft. wide is being formed at a speed of 9 ft. per minute, which gives a capacity of 6,480 sq. ft. per hr., or about 150,000 sq. ft. daily on a twenty-four-hour basis. As the dry boards weigh 600 lbs. per 1,000 sq. ft., this is equivalent to 45 tons daily.

The old methods of drying these boards was by placing them on hot steam pans, or by hanging on trucks or racks and passing through a hot dry room similar to a Progressive lumber dry kiln. Either of these processes required a number of hours, usually from 12 to 24, and the boards warped badly, so

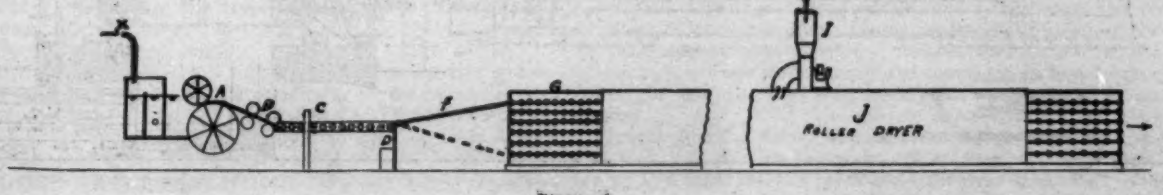


Figure 1

had to be calendered afterward to flatten them out. Obviously, these methods required a lot of time, space and labor, so were not satisfactory for a large production.

A new dryer has now been developed, known as the Coe Automatic Roller Dryer, which receives and dries the boards continuously as rapidly as they are manufactured, and at the same time keeping them flat. This type of dryer has been used for a number of years for drying veneers and thin lumber, but has only recently been adopted to paper and composition products. The drying time required varies from 6 to 180 minutes, depending on the product.

This roller dryer operates on the principle of passing the boards continuously over or between roller conveyors operating in an enclosed and insulated drying chamber, heated by stationary steam coils between the different decks of rollers. A large special fan system with outside heater coils is also provided to produce a violent and rapid air circulation over the boards, most of this air being recirculated and the balance discharged through vent stacks to remove the vapor laden air. Using high pressure steam, temperatures as high as 340 degrees F. may be obtained in the dryer, so the drying action is rapid and efficient.

These dryers are usually from 4 to 8 decks high, and of the same width as the wet machine, with suitable allowance for clearance and trim. A cutter and feeding device must therefore be interposed between the wet machine and the dryer to receive the boards and automatically place them on the different decks of the dryer. To take a specific problem, assume the wet machine previously mentioned making ½" board 12 ft. wide at a speed of 9' per minute, moisture content entering the dryer 65% and drying time required 120 minutes. This would require a dryer 6 decks high with rollers 13'-6" long and drying chamber 195 ft. long, allowing 5% for gaps in feeding, and not including feed end and cooling end. With a six-deck dryer, the dryer conveyors would operate at one-sixth of the speed of the wet machine and would therefore, in this case, be 1½ lineal feet per minute, for a capacity of 150,000 sq. ft. daily.

Figure 1, attached, shows a layout of such a plant with a six-deck dryer. The stock from the beaters or cookers flows into the chest at X, and is formed continuously by the wire covered rolls and special wet machine at A, the thickness being controlled by the percentage of water in the mixture, this water flowing out continuously through the cylinder rolls. This type of wet machine does not, of course, form a board so uniformly in thickness and density as the Rogers or cylinder used on the wet end of standard board machines, but is very satisfactory for thick buildings, insulation and industrial boards where absolute uniformity is not essential.

After leaving the cylinders, the board passes continuously between squeeze rolls B, which remove a portion of the water, to the cutter or saw at C, which cuts the sheet into suitable lengths, which may be varied from 3 to 12 ft. The individual boards then pass into the tipple feeding device F, which is pivoted and under control of the operator at D, so the boards may be moved rapidly onto any deck of the open feed end section, G, of the dryer. This has been worked out rather carefully with ratchet sprockets on the rollers in the feed section, so the boards are then picked up by the main chain drive for the dryer, and advance through slots into the enclosed dryer chamber.

The usual method of operation is to start feeding the first boards onto the top deck of rolls, working progressively down to the bottom deck, when the tipple is raised to the top deck again by counterweighted or motor driven cable and the operation repeated. In this manner a single operator can keep the dryer rollers 95% covered with boards lengthwise, so in figuring capacities 5% is allowed for gaps in feeding. In some cases the feeder is operated automatically by an electrical device in connection with the cutter, eliminating the operator entirely.

The enclosed dryer is shown at J, and a brief description

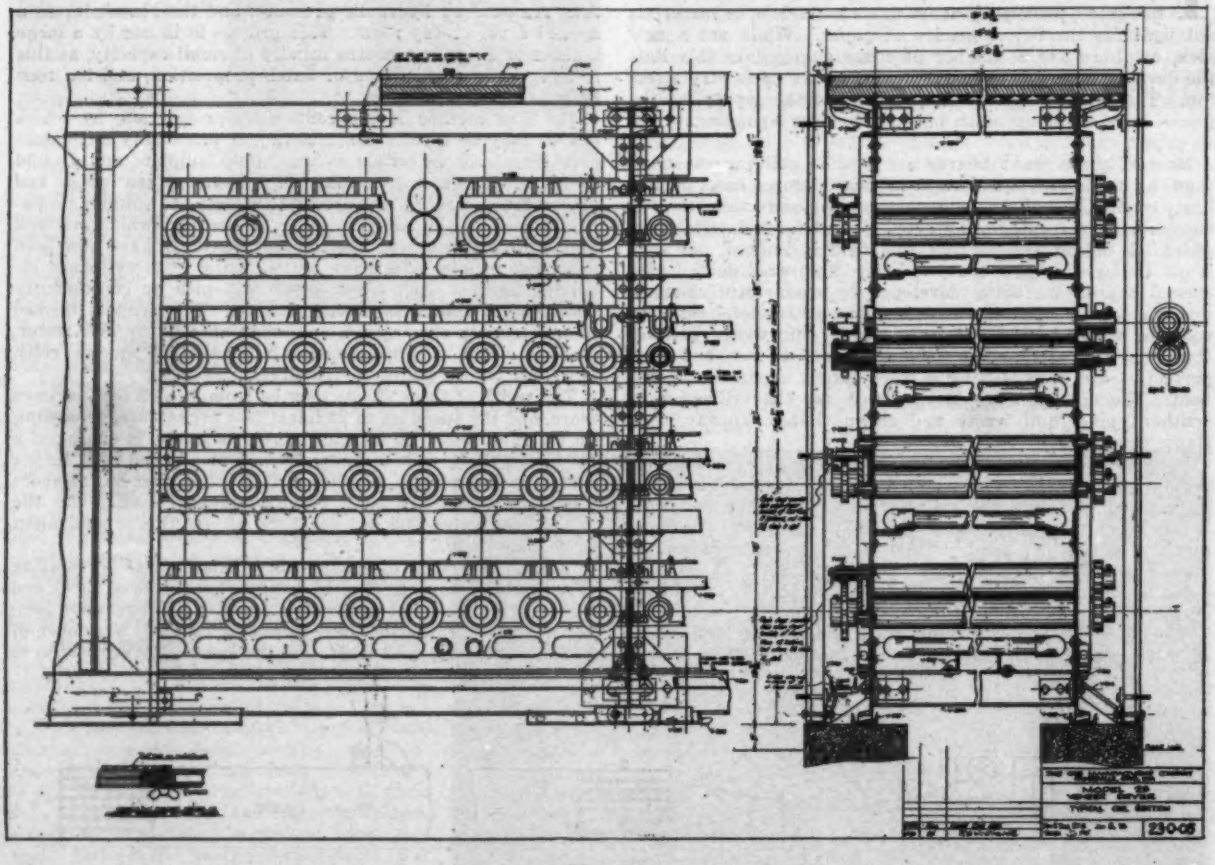


Figure 2

of its mechanical features follows: The entire framework is built of steel, designed to take care of expansion and contraction, the top being solid and insulated, and the sides removable insulating panels for access to the interior. All rollers revolve in ball bearings, and are driven by a variable speed drive rig at the dry end of the dryer, with chains along one side of the dryer, sprockets on the roller shafts, and a special chain tightener at the wet end. Owing to the slow speed of the roller conveyors, the power required for the drive rig is very small, from 5 to 10 H. P., depending on the length of the dryer, and is therefore not at all comparable to a high speed paper machine. A greater amount of power is, however, required for driving the fans.

The heat is supplied by stationary steam coils, consisting of cross-wise pipes and return bends made up in the form of radiators between each deck. In the latest designs either the coils, rollers, or bearings are readily removable from the sides of the dryer without disturbing the framework. The fan system for supplying a circulation of hot air through the dryer and for removing the vapor laden air is shown at I, on top of the dryer, although this may be placed on the floor alongside

Figure 3

Figure 4

if desired. Most of the air is recirculated and used over again, only a small portion passing out the exhaust.

Steam at 100 to 160 lbs. pressure is used in the dryer and the fan heater coils, depending upon the temperature desired. After leaving the hot dryer, the boards pass continuously through the open cooling end K, which is of sufficient length to cool the boards down to practically room temperature, and prevent warping or sweating. They are then received by the operators, piled on trucks, and are ready for shipment or further processing.

The Coe Roller Dryer is built in two types—first, those having double rollers so that the material to be dried passes between rollers as it travels from the wet end to the dry end and is thus held flat; second, the single roller type, in which the rollers are used only as conveyors for carrying the material through the machine. Fig. 2 shows very clearly the side elevation, cross-section, and construction details of a four-deck double roller dryer. These dryers are usually three to five decks high and are built with 3¾" diameter rollers. The horizontal distance between the center of the rolls is either 4½", 5¼", 7", or 9". In the same machine all four spacings may at times be used, for if the material to be dried is very soft and weak when wet, the close spacing of the rolls at the wet end of the dryer is necessary to carry it. As the material becomes dry it stiffens and the rollers' centers can be increased accordingly.

The top roller rests in a yoke and is driven by star gears from the lower roller so it automatically moves up and down for any desired thickness of stock up to 1". The entire weight of the upper rollers rest on the boards, keeping them absolutely flat during the drying and cooling process, besides giving a very smooth finished surface. This dryer may be used for such products as binders' board, fibre board, single-ply wallboard, etc., which have a pronounced tendency toward warping in the drying operation, and also where a very smooth face is desired. With this dryer, and special manufacturing processes, boards of great strength and toughness may be produced.

The second type, or single roller dryer, has no top rolls, and is from one to eight decks high. The general construction is exactly the same, except that it is a lighter, simpler and cheaper machine to build. So far most of the new developments have been with this type of dryer, as it is well adapted to the continuous process previously described for drying such boards as gypsum wallboard, asbestos, composition, and insulation boards which do not warp or require to be rolled in the drying process.

Insulation board, for instance, is made up from suitable fibres, formed into a thick board on special continuous wet machines, and obtains most of its insulating qualities from its cellular formation. It can not be dried in a double roller dryer, because the pressure of the top rolls would compress the fibres and air cells, reducing the thickness and insulating properties very materially. The single roller dryer has proven to be very satisfactory for this product, producing boards of excellent structural strength and uniformly flat. In general this type of board does not show much tendency to warp when dried while moving horizontally over a smooth, continuous bed of roller conveyors.

One of the largest and most interesting installations of this character is that of the Celotex Company, New Orleans, La., who manufacture ½" insulation board from bagasse, or sugar cane refuse, formerly a waste product burned under boilers. Celotex is now widely used instead of wood sheathing in building construction, as a stucco and plaster base, also for lining and insulating refrigerators and railroad cars, and many new uses are being found daily. The structural strength is fully equal to that of wood sheathing, and the insulating value is far greater, so no other insulation is required between the walls.

The Celotex plant has some interesting modifications from the layout previously described. The boards are formed on a special continuous wet machine making a sheet 12 ft wide, and then passes through a straight line continuous single roller dryer 800 ft. long to the cutters on the dry end of the machine, which divides the sheet into 3' or 4' sheets, and also cuts to required lengths. In this manner, practically all labor is eliminated, also losses from cutting and retrimming, and no feeding device is required. Owing to the slow speed of the machine, approximately 8 ft. per minute, very little attention is required, and the plant is operated continuously twenty-four hours per day six days per week, with shutdowns only on Sunday.

Figures 3 and 4 show the latest Celotex dryer under construction, this machine being also 800 ft. long, two decks high, fed by two separate wet machines built over each other, and having separate cutters on the dry end, so it is in effect two

distinct machines. This dryer produces 300,000 sq. ft., or 90 tons of dry boards daily. The first dryer, which was a single-deck machine, is now being double-decked, and also arranged for making ¼" board to be used for boxes and containers. This type of dryer is best adapted to warm climates, and to locations where ground values are low. When analyzed, the general scheme of operation is exactly the same as the ordinary paper mill or board plant, except for much greater thickness and slower speed, so the attention and skill required to operate the dryer is less.

Another successful development is the Insulite plant of the Minnesota & Ontario Paper Company, at International Falls, Minn., which has been in operation for several years. They are using the sulphite and ground wood screenings from their large newsprint mills to make a high grade insulation board, instead of putting it into kraft paper or board, which is the usual scheme with large newsprint mills having a sufficient amount of screenings. The returns have been so satisfactory that they are now starting construction on a new Insulite plant, embodying the largest multiple deck single-roller dryer ever built, requiring 1,000 boiler horsepower of steam at 160 lbs. pressure for operation.

In conclusion, the writer wishes to bring out the thought that, owing to the growing scarcity and high prices of all lumber and wood products, we are rapidly approaching the days of substitutes in building construction and other industrial and manufacturing operations. While we probably will not, like the Jap, live in paper houses, yet the house of the future may be built largely of brick, tile and plaster, combined with wallboard and insulation boards instead of lumber, and the present development in this regard is very surprising. Special thick boards will also be used in the manufacture of furniture, cabinets, automobile bodies, boxes, and a multitude of other uses.

The thin paper and board industry in the United States has already attained a high state of perfection, and the competition is very keen. Much of the latest development is along the lines of very high speed machines for newsprint and other thin papers. The writer believes that the next move may be in the opposite direction, namely, producing very thick sheets or boards at slow speeds by the continuous process. Such boards may be manufactured from coarse fibres or waste products, which are readily obtained in the United States, and are not suitable for the better grades of paper. This more or less virgin field may be the way out for a number of paper manufacturers confronted by unfavorable conditions as to raw materials, and some of the best brains in the industry will undoubtedly be interested in such a conservation of our resources.

High Grade Papers Made in Los Angeles

VERY few people outside of Los Angeles really know that Los Angeles is quite a large factor in the production of high grade papers on the Pacific Coast.

Some few years ago at the solicitation of the Los Angeles Chamber of Commerce, a small paper mill was erected at Fifty-fifth and Alameda Streets, now known as the California-Oregon Paper Mills. From this small beginning, the present larger plant has grown.

At the present time, there are three paper making machines equipped for the production of from fifty to sixty tons maximum of high grade papers per day. This plant gives employment directly and indirectly to many hundreds of Los Angeles people. It operates three eight hour tours, or shifts, and is one of the most economically operated mills on the Pacific Coast, if not in America.

At the present time only two machines are in operation, the third one being down for a complete overhauling and the addition of some new more up-to-the-minute equipment.

When the writer visited the plant, one machine was making the highest grade of genuine kraft wrapping paper and the other one was producing cantaloupe tissue for one of Los Angeles' other important industries.

During the month of January, these mills produced over 750 tons of wrapping paper, about one-third of which was tissue paper. The entire product if placed end to end, 250 tons of ten pound paper and 500 tons of average thirty pound basis weight, would carpet a space seven feet wide by 7,500 miles long, or over twice the distance from Los Angeles to New York.

The finest of pulps only are used in the manufacture of these papers and they are imported for the reason that no pulps of like nature are manufactured on the Pacific Coast, not even in the great paper producing section of the Pacific Northwest. Of the 8,000,000 tons of paper made in America in 1924, over 45 per cent of the pulp used was either made from imported pulpwood or imported pulps. In the largest paper making centers in America, Holyoke and Springfield, Mass., and Kalamazoo, Mich., no pulp whatever is manufactured.

Los Angeles is proud of its paper industry and Los Angeles people are not slow to see the wonderful quality of its products.

The market price is always lower than on competitive brands of any anywhere near like quality and over two-thirds of the paper distributors of Los Angeles are handling the product of the Los Angeles Paper Mills.

Of the grades manufactured, the following list gives a fair idea of the importance of this industry to Los Angeles and the other paper consuming industries in our market:

Sulphite and sulphite kraft wrapping papers, in all standard weights and sizes, both for wrapping purposes and bag manufacture.

Sulphite and kraft tissue papers, both bleached and unbleached.

Sulphite and kraft citrus and other fruit and cantaloupe tissues.

Sulphite and kraft waxing papers for all purposes, both bleached and unbleached.

Butchers' papers in both sheets and rolls.

Grocery, bakers' and other special grades required for special uses too numerous to mention.

The California-Oregon Paper Mills sell only through distributors but all their paper is sold under Los Angeles Paper Mills' brands and Los Angeles and the Sunny South are advertised on every roll or package leaving this plant, no matter whether it goes far or near.

While this plant produced only 750 tons in January, there is used in Los Angeles over 1,500 tons monthly of wrapping papers in addition to a like tonnage in the balance of the Los Angeles territory, or about 3,000 tons monthly.

It is expected within the next year that the increased demand for Los Angeles made paper will call for an increase in even the capacity of the present plant and planning arrangements are now being made to that end.

This is only another evidence of Los Angeles' industrial growth.

More Lands for Eastern National Forests

The National Forest Reservation Commission at a recent meeting authorized the purchase at an average price at $4.77 an acre of 12,817 acres in the eastern States, of which 6573 acres are in Tennessee, 4258 in Pennsylvania, 905 acres in Virginia, 287 acres in North Carolina, 66 acres in Georgia, 300 acres in Alabama, and 428 acres in Arkansas. W. W. Ashe, secretary of the National Forest Reservation Commission, states that these purchases bring the total area the purchase of which has been authorized during the current fiscal year up to 247,067 acres and increase the total area acquired in the 14 years during which purchases have been made to 2,593,421 acres, at an average price of $4.96 an acre. Of the area being acquired during the current year, more than 30,000 acres are in Pennsylvania, 17,000 in Virginia, 66,000 in Tennessee, 24,400 in North Carolina, 40,000 in Georgia, 5,900 in Alabama, 1,700 in Arkansas, 3,800 in West Virginia, 22,000 in South Carolina, and 21,600 in New Hampshire.

On account of the fact that the National Park Commission, appointed by the secretary of the Interior, has under consideration the location of a National park in the Smoky Mountains, the National Forest Reservation Commission rescinded its action taken in 1911 for the establishment of a Smoky Mountain National Forest. This permits freedom of action by the park commission in considering this region for a National park.

News Briefs from Washington

Washington, D. C., April 1, 1925.

Customs Hearing Continued to April 17

There seems to be no reason at present writing why the hearing before the customs experts in regard to altering the definition of newsprint should not reach a conclusion that will be satisfactory to both the newspaper publishers and the paper manufacturers. The manufacturers maintain that under the present definition much paper that is not newsprint obtains free importation as such and that they want the definition changed so as to shut out this sort of paper. The newspaper publishers say that they want to study the proposed change so as to make sure that it does not affect the free importation of newsprint, and that they are entirely willing to exclude other paper from free entry. They claimed, however, that they had not had time to study the proposed description when the hearing began on Friday of last week and asked a continuance till April 17, which was granted.

The present regulation provides that free entry may be accorded to newsprint paper consisting of "mechanically ground wood pulp and chemical wood pulp or sulphite containing not in excess of 30 per cent sulphite and varying in weight not more than 10 per cent from 32 pounds for each 500 sheets of 24 by 36 inches."

When this definition was adopted, it was believed by the customs experts that by limiting the sulphite to 30 per cent they practically decreed that the remaining 70 per cent should be mechanically ground pulp, or, at most, that no minerals, sizing, or other fillers should be added. Now, however, it appears that under this definition much paper, containing as much of such fillers as the 10 per cent limit on weight would permit, has been imported free.

The end of the strike in Sweden which for the last few months has been causing much disorder in its paper and pulp and other industries will have little repercussion in the United States. The terms of settlement grant a 4 per cent increase in wages in the paper and pulp industry, which is not sufficient to affect exports to the United States materially. If the 40 per cent for which the workers were striking had been granted, it is very probable that Swedish pulp could not have been exported to this country at a profit.

Abstracts from Consular Reports on Foreign Market

German Pulp and Paper Production.—A total of 574,654 metric tons of mechanical pulp and 730,311 tons of chemical pulp were produced by the German mills during 1924. The greater part of the output was absorbed by the domestic paper mills, only 19 per cent of the chemical pulp and 2 per cent of the mechanical pulp being exported. Paper production by the mills of the association was reported to reach a total of 1,649,622 tons, of which 354,622 tons were newsprint. Board mill produced about 276,364 tons. Exports comprised 35 per cent of the newsprint, 30 per cent of other papers, and 15 per cent of the board output.

Advance in German Pulp and Paper Prices.—The association of chemical pulp manufacturers announced an advance in the cartel prices for chemical pulp, effective February 1 to March 31, of approximately 15 to 20 cents per 100 pounds. Current quotations on the various grades, as reported by Consul N. P. Davis, Berlin, are as follows: IIa unbleached $2.78, Ib unbleached $2.94, Ia unbleached $3.05, Ia bleachable $3.29, IIa bleached $3.80, and Ia bleached $3.97, per hundred pounds. The action on the part of the chemical pulp manufacturers was followed by a similar action on the part of paper and board manufacturers, quotations on mechanical pulp also having been previously increased. Wrapping papers were chiefly affected, kraft paper having been advanced from $4.97 to $5.18 per 100 pounds. No change has yet been announced in newsprint prices which remain at $3.46 per 100 pounds. Prices for rotogravure paper range from $4.16 for the cheaper grades with groundwood content up to $6.48 for better grades, and $10.80 and over for the best grade.

Dresden box manufacturers complained bitterly during all of 1924 about the 20 to 25 per cent increase in paper board prices but without avail. Wages have also more than doubled. Since January 1, stocks of raw material seem to have run low, causing some delay in filling orders. Prices have been unsatisfactory; a number of factories have been compelled to sell at the risk of loss in order to continue work. Exports were at a standstill at the end of the year. Freight and postal rates and taxes have recently been reduced and hopes of better business are held in consequence. An improvement in pulp wood has been noticed for some months.

Pulp conditions in Frankfort, as in most parts of northern Europe, are unsatisfactory because of the lack of snow, which is restricting logging. In Frankfort many of the paper mills are idle from lack of water for power. An increase in prices of 5 to 6 per cent was announced by the Association of Pulp Manufacturers, effective February 1, in consequence of which paper manufacturers have also increased their prices by 2½ to 5½ marks per 100 kilos (27 cents to 59 cents per 100 pounds).

German exports of books, blank books, etc., during 1924 decreased about ten per cent as compared with 1923. German manufacturers claim that this is due to heavy taxes and to exorbitant prices charged by syndicates controlling raw materials. German books have recently been printed and bound in Switzerland to avoid these costs.

The production of woodpulp in East Prussia, reports Consul H. D. Clum, is next to agriculture, the most important industry in East Prussia. There are four mills in the Province, two in the city of Koenigsberg (owned by the Stinnes interests), one in Tilsit, and one in Ragnit. A considerable proportion of the output from these mills is shipped to the United States, as well as to the South American countries and to Japan and Russia. Heretofore shipments abroad have been made either by means of foreign vessels calling at Koenigsberg or via Hamburg or Bremen. One of the woodpulp companies, however, has recently put into service a special steamer, which will probably maintain a service to New York and Baltimore, and a second vessel is now under course of construction to be used in this trade, providing return cargoes can be secured.

Beginning March 1, the requirements of a license for the exportation of paper and paper products from Austria has been done away with.

Japan.—Two sorts of pulp are used in Japan for local paper making; one for making the characteristic Japanese-style paper and one for making the European style.

Pulp for the Japanese style is prepared, reports Consul-General Stewart, Tokio, principally from the paper mulberry tree and from the "mitsumata." The bast from the paper mulberry is utilized in the manufacture of handmade papers since the fibers do not lend themselves readily to manipulation by machinery, although the latter is sometimes used in the manufacture of paper from the mitsumata. A characteristic of Japanese-style paper is that it is made from materials with exceptionally long fibers, which could not be readily manipulated by machinery adapted to the ordinary pulp.

The foreign style papers are made from ordinary wood pulp, for making which the forests of Sakhalien are utilized. However, the demand has increased so rapidly and so far exceeds the supply from the Japanese forests that during 1924 it was found necessary to import pulp to the value of 10,623,000 yen ($4,355,000), Canada, Norway, Sweden and Germany

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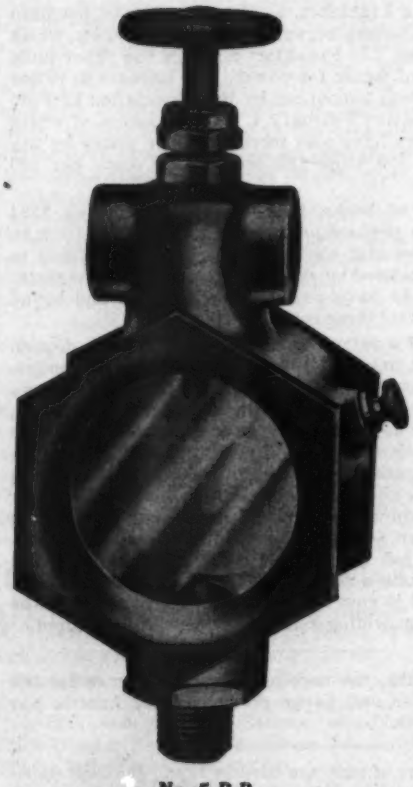

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being the principal sources of supply. Paper manufacturers predict that, in view of the increasing output of the Japanese paper mills and the limited supply of pulp available in Japanese territory, the imports will increase rapidly in the future.

There are two classes of bast fiber, one termed black bast and the other white bast, or bleached. Prices quoted for the latter on January 14 were 30 yen per 10 kan, equivalent to $0.139 per pound, for that made from the paper mulberry tree and 25 yen per ten kan, or $0,116 per pound, for that made from the mitsumata. The following quotations ruled on wood pulp on the same date:

German unbleached sulphite, per 100 pounds.....$3.64
German bleached sulphite, per 100 pounds..... 4.30
Swedish unbleached sulphite, per 100 pounds..... 3.80
Snow brand, unbleached, Japanese..... 3.26

Wrapping paper is in demand only in the better shops of Japan; and in these the imported paper, though admittedly superior, meets strong competition in the domestic production. Some paper is imported from Sweden on account of its low price.

The imported paper is sold by the local dealers in long reams (500 sheets 36 inches by 48 inches in size) at prices ranging from 5 yen and 9 yen ($1.93 to $3.47) to 30 and 40 yen ($11.55 to $15.40). Most of the Japanese-made paper sold here is of the cheaper grades, the cheapest selling at 7½ yen ($0.89) per ream and the most expensive at 60 yen ($23.10) per ream. The size of the sheets also vary considerably, 32 by 23 inches, 27 by 38 inches, 36 by 48 inches, and 47 by 36 inches being the popular sizes.

Fiber board might sell well in Japan if sold at a low enough price to meet the cost of plastering. At present interior finish consists of wooden ceilings and plaster mixed with sand for the walls.

Roofing and building paper is being increasingly used in Japan, nearly all of it coming from the United States. Imports have doubled since 1917. Names of the leading importers have been sent to the U. S. Department of Commerce and will be forwarded to those interested on request.

Belgian paper mills have been working full time since the first of the year. A good deal of paper, particularly newsprint, has been contracted for by South American firms. Imports of wrapping paper from Sweden and of certain fine French papers are disturbing the Belgian paper markets.

The Latvia paper industry will suffer owing to the inability to obtain heavy timber due to the lack of melting snow to float it down.

The pulp and paper mills in Czechoslovak are well employed and manufacturers report present conditions fair. During the month of January exports of wood pulp from the country totaled 8,175 metric tons (2,204.6 pounds=1 metric ton) and were valued at $505,928. Approximately one-fourth of the exports were purchased by the United States, the remainder going to Italy, Germany and France. No changes occurred in prices quoted on wood pulp during the month of February, but a reduction of 10 hellers per kilo (13 cents per 100 pounds) was announced by newsprint manufacturers. (Consul General C. S. Winans, Prague, February 27.)

Testing Paper for Permeability to Liquids

In the valuation of many papers, their behavior in respect to penetration of liquids is of prime importance. A large number of the methods proposed for testing the permeability of paper to liquids are inadequate for the purpose, and the U. S. Bureau of Standards is endeavoring, through research, to improve existing methods and develop new methods.

The resistance of writing paper to ink must be such that the ink will not spread or penetrate through the sheet before it has had time to dry. Wrapping paper and paper bags are required to be sufficiently water resistant to prevent wetting through by damp articles, such as meat and certain other food products. Paper used to protect merchandise in transit or storage, particularly for overseas shipment and storage in damp climates, should be practically waterproof. In testing such papers, a specimen is floated on water and on the upper surface is sprinkled a mixture of powdered sugar and a water-soluble dye. Any water which penetrates through the paper is immediately absorbed by the sugar, in consequence of which the particles of dye scattered through the sugar develop their characteristic bright color, providing a definite end point. In this way it is possible to measure quite accurately the time required for water to penetrate through paper. Another method used for the same purpose consists in sealing the paper with paraffin to a glass cylinder, filling the cylinder with water and placing it on a piece of ground glass, which is made more transparent by the water that penetrates through the paper. This method of test is of particular value in connection with papers which are extremely resistant to penetration of water, such as various products waterproofed by the use of asphaltum.

At the other extreme from sized and waterproofed paper are absorbent papers such as blotting and toweling. These papers should readily absorb ink or water as the case may be. Their quality in this respect is found by noting the time required to absorb a very small but definitely measured amount of water placed upon the surface. Improvement in the technique of this method has made greater accuracy possible.

A special type of paper is used for wrapping greasy food products, and is required to be fairly resistant to animal and vegetable oils. This type of paper is tested by immersing a specimen in oil after sealing it to a glass cylinder with sirup or glue. If it were attempted to float the specimen on oil the oil would creep over the edges and quickly cover the entire surface. The test consists in noting the time required for the oil to penetrate through, as judged by the appearance of transparent spots.

Railway Rates

On March 4 last, the Great Lakes Wall Paper Mills, the Audebert Wall Paper Mills, and several other companies filed a joint complaint against the Illinois Central for over-charge in carrying coal to Chicago from western Kentucky. The complaint alleges that the Illinois Central disregarded special clauses in its own railroad tariff in fixing the rates. On March 18, the Belt Railroad Company of Chicago was made an additional defendant.

On March 28 the Interstate Commerce Commission issued an order in regard to a tariff containing schedules stating new individual and joint rates and charges and new individual and going regulations and practices that had been filed with the commission to take effect March 30 (S. J. Henry, agent, I. C. C., No. 152). The order states that the schedules make certain reductions in rates for carrying wrapping paper and paper bags which appear injurious to the public interest; and orders that the schedules be suspended and the existing ones remain in force till July 28, 1925, or until the investigation proceedings have been disposed of, unless authorized by the commission.

Ten Years of Industrial and Scientific Efforts

The last ten years have seen prodigious efforts in the various chemical domains, as well as scientific and industrial domains.

The work, "1914-1924," which is being prepared by the Société de Chimie Industrielle, a French association which has been recognized as a public utility, will include all specialties of applied chemistry. It will also show the economical balance sheet of each French industry dealing with chemistry and will show the development which has occurred in the colonies in the production of raw material necessary for these industries.

This important work will group a voluminous amount of documents given by competent men of the industrial and scientific world. There will be about 3000 pages of quarto size, and will be bound. A propaganda subscription is open at the present time at a special price of 120 francs until June 1, 1925. After this date the price will be 200 francs.

The subscriptions for this work are received at the Société de Chimie Industrielle, 49 rue des Mathurins, Paris.

Foote Bros. Gear and Machine Co. have recently opened a new sales office in Providence, R. I., to handle business throughout the New England States. The office is in charge of Mr. George Walsh, is located at 72 Ontario St., Prov.

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Northern New York News

April 1, 1925.

Embargo Controversy Involves Ogdensburg Mill

The Algonquin Paper Corporation, of Ogdensburg, has been brought into the controversy over the proposed pulp wood embargo by Canada. It is claimed by the proponents of the embargo that the establishment of the mill on the American side of the border is an argument for the embargo. George M. McKee, former president of the Canadian Pulp and Paper Association, is president of the Algonquin company, and it was under him that the newsprint mill was established. Replying to questions as to why the mill was located in the United States, Mr. McKee wrote:

"The question as to the location of the mill was not a contest between the United States and Canada, as there was already on the spot, in Ogdensburg, a groundwood mill with a long time power contract as well as established relations with the George Hall Coal & Shipping Corporation of Montreal for a pulpwood supply. These and other features made the establishment in Ogdensburg possible economically.

"Prescott was an impossible site, as there was no water power available on that side of the river in sufficient quantities, and, indeed, no one in Prescott ever looked for the establishment of the mill there.

"The wood is on a long-term contract, and costs about $18 to $19 a cord peeled and delivered and all of this money goes to Canadian enterprise.

"All the sulphite used is purchased from Canadian mills and transported to Ogdensburg by Canadian boats. The actual figures work out as follows: Wood from Canada, $349,000; sulphite from Canada, $440,000; total, $789,000. This is paid to Canada for a product that is sold f. o. b. mill for $1,841,000, thus nearly 43 per cent of the net income is secured in Canada. The power is purchased from the St. Lawrence County Utilities at prices approximately the same as mills in the province of Quebec pay."

The transfer of its property from the Champion Paper Corporation to the Carthage Power Corporation, recently made, amounted to $600,000, according to the deeds filed in the Jefferson county clerk's office.

Owing to minor corrections which are being made in the decree of sale, the date of sale of the Carthage Pulp & Sulphite Co. has not as yet been set. The sale will be held at the court house in Watertown.

An incinerator plant and conveyor system for disposing of the bark removed at the pulp wood terminal at Ogdensburg is being installed at a cost of $40,000, and will be in operation this season. The bark will be burned and the steam generated will be used for the development of electric power to be used at the terminal. The conveyor will carry the wet bark to the storage field, where it will be dried before being used for fuel. The electrical power now used is purchased from the St. Lawrence Transmission Co. The bark accumulates at the rate of 50 tons a day, or 14,000 tons during the season. Formerly it was dumped into the river, but this practice was prohibited on account of the pollution of the water.

More than a ton of brass fitting belonging to the International Paper Co. have been found at Glens Falls. Five men are under arrest charged with the theft.

Vote to Open Adirondacks

An amendment to the New York State Constitution favoring scientific and practical logging operations in the Adirondacks was voted 130-109 by the students of the New York State College of Forestry, Syracuse University, after a debate on the subject recently. Two seniors were selected to discuss the subject: "Resolved that a scientific and practical policy for the management of the Adirondack State Forests demands immediate repeal of Article 7, Section 7, State Constitution."

The contention of the affirmative side was that under present known methods of forest management, the Adirondacks could be lumbered without injury to its recreational values. This argument was strongly opposed on the ground that destructive logging operations have been carried on in the Adirondacks ever since the lumbermen began cutting timber there; also, that public reaction on several proposed constitutional amendments has always been recorded against lumbering in the state parks.

The affirmative was supported by Harvy Jack of Buffalo and the negative by Everett T. Gambling of New York City.

St. Regis Contracts for New Paper Machine

The St. Regis Paper Co., of Watertown, announced March 31, that it had just closed a contract with the Bagley & Sewall Co., of Watertown for the construction of a 156-inch Fourdrinier paper machine with a speed of 1,000 feet a minute and capable of producing 95 tons of newsprint a day. The machine will be installed in the Deferiet plant of the company. Work will be started at once and the machine will be completed Oct. 1 of this year. The cost of the machine is between $250,000 and $300,000, it is estimated, although the actual figures have not been made public.

The machine will be installed in place of the present 110-inch machine in the Deferiet mill, which was installed 21 years ago and has a capacity of 35 tons of newsprint a day. With the present price of newsprint around $70 a ton, the new machine, if used on newsprint, would increase the value of production at the rate of $4,000 or more a day. The new machine will be equipped for the manufacture of catalogue paper, and the output will be between 75 and 80 tons a day.

The machine will be 250 feet long and the entire machine will be set up and fitted at the Bagley & Sewall plant, and will then be taken down and transferred to Deferiet, where it will be assembled. With a speed of 1,000 feet a minute, it will be the fastest machine in northern New York. The Algonquin Paper Company machine at Ogdensburg, 200 inches wide, has a speed of 800 feet a minute and its capacity is 100 tons a day. The machine will be used to make paper for the directories of the New York Telephone Company.

After being shut down for two weeks for general overhauling, the larger of the two machines of Knowlton Brothers mill, in Watertown, was reopened today, equipped with four new dryer rolls. The machine has been generally repaired and painted. It is a combination Fourdrinier and cylinder machine and has a capacity of 15 tons daily.

New Generators at Dexter Plant

Three new generators developing from 3,000 to 4,000 H. P. to supplant the present steam and hydraulic plant are installed in the plant of the Dexter Sulphite Pulp & Paper Co., at Dexter. This completes the electrification of the mill which was planned two years ago when a new concrete dam was constructed. This dam, which will develop a head of 13 feet, and the new power house will be completed soon. Up to the present time the plants of the company have been operated with hydraulic power and steam, but with the new generator equipment the steam plant will be scrapped and a considerable saving of fuel will be made. The machines will be operated by individual motors, drawing power from a central plant, eliminating the present system of shafting and belts.

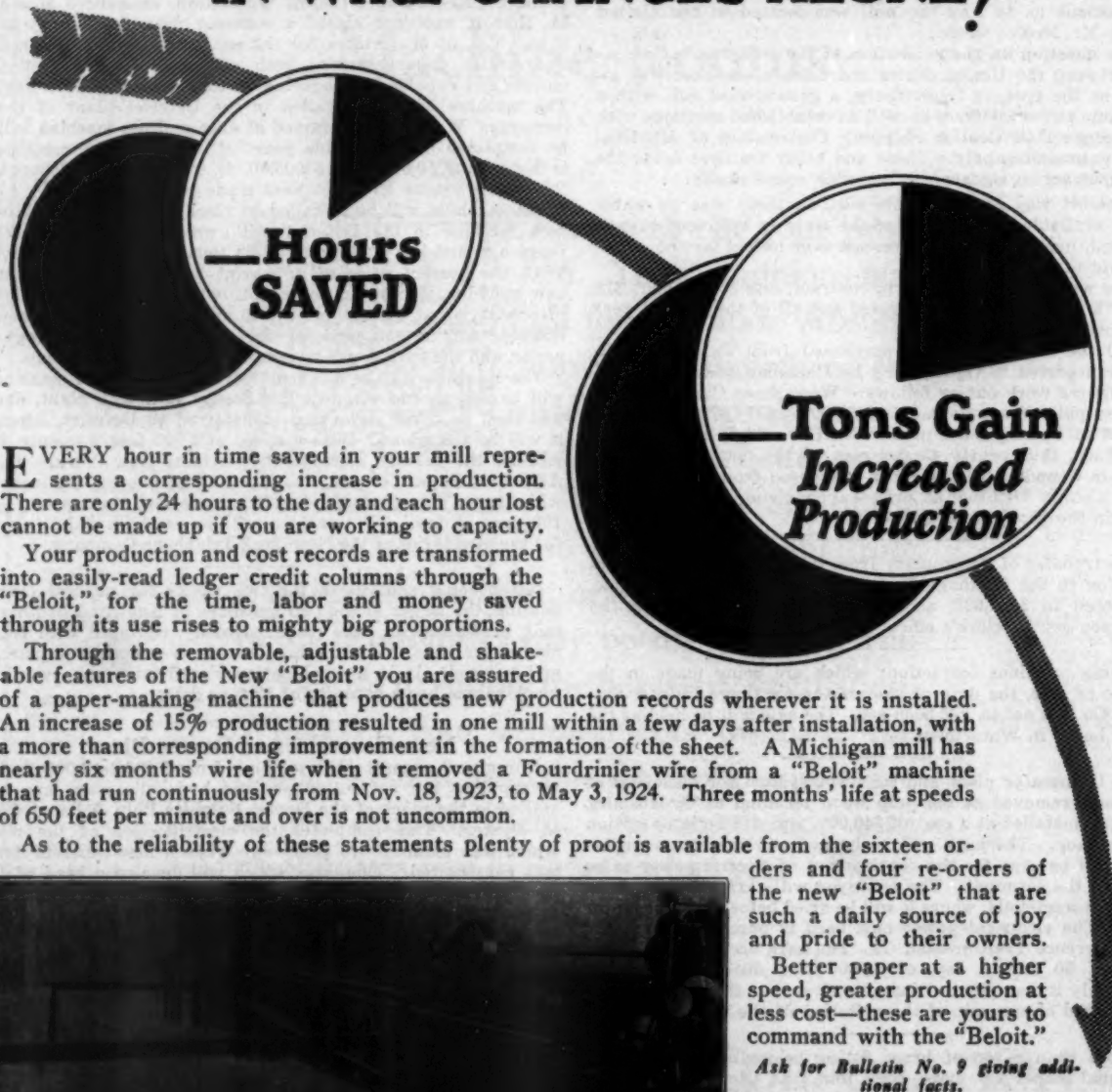
Production Record Made at Algonquin

The Algonquin Paper Corporation, of Ogdensburg, during the week of March 16, established a record for continuous production. The big machine ran continuously from Monday until Thursday without a break, turning out more than 600 miles of newsprint. The week before, more than 600 tons of newsprint were turned out in six days. It is said that the quality of paper which is being turned out is of the highest grade and is equaled by few mills.

During the break in the power line a few nights ago, the big steam turbine was started, and the generator was operated, producing about 450 horse power, or sufficient to supply the mill with what was coming from outside sources. This enabled the mill to run almost to capacity with the exception of the wet room. The electric crane which was recently

DOLLARS SAVED

IN WIRE CHANGES ALONE!



EVERY hour in time saved in your mill represents a corresponding increase in production. There are only 24 hours to the day and each hour lost cannot be made up if you are working to capacity.

Your production and cost records are transformed into easily-read ledger credit columns through the "Beloit," for the time, labor and money saved through its use rises to mighty big proportions.

Through the removable, adjustable and shakeable features of the New "Beloit" you are assured of a paper-making machine that produces new production records wherever it is installed. An increase of 15% production resulted in one mill within a few days after installation, with a more than corresponding improvement in the formation of the sheet. A Michigan mill has nearly six months' wire life when it removed a Fourdrinier wire from a "Beloit" machine that had run continuously from Nov. 18, 1923, to May 3, 1924. Three months' life at speeds of 650 feet per minute and over is not uncommon.

As to the reliability of these statements plenty of proof is available from the sixteen orders and four re-orders of the new "Beloit" that are such a daily source of joy and pride to their owners.

Better paper at a higher speed, greater production at less cost—these are yours to command with the "Beloit."

Ask for Bulletin No. 9 giving additional facts.

Showing Rails in Place

The NEW BELOIT FOURDRINIER

Beloit Iron Works — **Beloit, Wis., U.S.A.**

ESTABLISHED SINCE 1858

established in the mill yard for the handling of ground wood is now operated at a minimum cost. The mill uses about 15,000 cords of wood annually, besides large quantities of sulphite which are imported from Quebec.

One of the biggest lumbering operations in the Adirondacks has just been completed by Kenneth Hunter of North River. Hunter cut and loaded 10,000 cords of pulp wood in the Bay Pond section. Operations in the western section of the Adirondacks came to an end during the middle of March. The Gould Paper Co. landed 23,000 cords of pulp wood, leaving but 3,000 cords in the woods. The next activities of the Gould company will be at McKeever, during the present month. The logs that have been landed in the Moose River will be driven down the river to the mills.

Carlisle Group in New Deal

The Power Corporation of New York, headed by Floyd L. Carlisle, president of the St. Regis Paper Co., has virtually completed arrangements for a merger with the Anthony N. Brady interests. The properties involved are the Utica Gas & Electric Co., The Municipal Gas Co., of Albany, the Cohoes Light & Power Corporation and the Troy Gas Co. The combined assets of the four companies is $50,000,000 and the aggregate gross earnings per annum are $10,000,000. It is the greatest power combine in New York state in several years, involving power properties reaching from the Niagara River to the Hudson River.

It will make a gigantic super power system, and it is said that the International Paper Company is interested. This comes about through the interchange of power with the New England Power Co., which is owned by the International.

Big Expansion Plan for I. P. Co.

Stockholders of the International Paper Co. at a special meeting held in Corinth approved the plan to increase the authorized common stock from $20,000,000 to $50,000,000, and authorized the creation of $50,000,000 new 7 per cent preferred, exchangeable for the present 6 per cent preferred, share for share and $10 cash. Plans for acquiring Canadian properties of the former Riordan Company now in the hands of the bondholders' committee, was approved by ratification of a contract with the Canadian International Paper, Ltd., a new holding company.

A. R. Graustein, president of the International, several days ago predicted that if the plans were approved, a large part of the American newsprint industry would be transferred to Canada. He said that American paper mills could not compete with the cheap wood supply and the continuous water supply of the Canadian mills.

Two new sulphite mills will be secured by the International Co. The acquisition of the Riordan and Gatineau properties will bring the International's holding of timber up to about 16,000 square miles as compared with 7,000 square miles at present. The Gatineau limits are unique in that they consist of one solid block of 5,500 square miles. A water power near Ottawa capable of profitable hydro-electric development and sale of current is another asset. An excellent site is to be found on the Gatineau for a newsprint plant and the erection of a mill on the lines of Three Rivers is contemplated. Initial capacity will probably be around 400 tons of newsprint daily.

Michigan News

April 1, 1925.

Bradford Paper Co. in Operation

The Bradford Paper Co., Clarence Bradford president and general manager, is now in operation, having started on March 25th.

At present only two of their Waldron Coaters are in operation; the other two are in process of installation. Only one stack is ready to operate.

This concern, when all the machinery is installed, will have four Waldron Coaters, with a patent suction apron, trimming 73 inches and two 85-inch stacks, the largest in the valley. These stacks are water-cooled and have a patented forced oiling system on them, by which the oil is forced to the bearings, and coming back by gravity to the oil reservoir, is purified and sent back into the system again. They will also have two Hamblet Cutters, with layboys on them, and one 85-inch Seybold Trimmer.

This concern has made excellent progress, Mr. Bradford resigning from the Rex Paper Co. on October 1, 1924, to organize his own plant. They purchased their building from the Dunkley company, and it is ideally constructed for their use. The coating machines are situated on one side of the building, with a brick partition between them and the finishing room. The siding runs the entire length of their building.

Mr. Everrt Hayes, formerly coating superintendent at the Rex Paper Co., is superintendent here.

Allied Mills Visited by Two Small Fires

Sunday evening, March 8th, the laboratory of the Allied Mills, located in their general offices on Lake street, was visited by fire, which completely gutted this department. Every instrument in the laboratory was completely ruined, and all records kept there were destroyed. The loss in actual property damage was three thousand five hundred dollars.

On March 28th, the shavings under a rewinder at the Monarch division, for some unknown reason, ignited. Prompt work by William Carroll, general superintendent, who happened to be near this particular machine at the time, saved the fire from spreading farther. The damage was confined to the rewinder and amounted to five hundred dollars.

Superintendents Hold Monthly Meeting

Thirty superintendents and kindred salesmen enjoyed a very successful meeting which was held at the Park-American Hotel, on March 19th. At this meeting a representative of Bauer Brothers Co., of Springfield, Ohio, explained their new system for eliminating beaters and Jordans through their patented process. This process is in operation in the East, but not in this section.

Dunn Sulphite Paper Company Business Better

Steady advance toward better business conditions since the first of the year and indications that conditions will be improved in the future is the view of the industrial situation taken by the Dunn Sulphite Paper Co., according to Theodore W. Dunn, president.

"From observation, I would state that business looks much better than it did a year ago," said Mr. Dunn. "The outlook is much better than it was at the first of this year when business slumped slightly. Business has been on a steady advance since that time."

The company is employing its usual force of men. Much of the work is done by automatic machines, the labor consisting of handling the raw product and taking the finished product out. The company has orders on hand for several weeks, Mr. Dunn stated, and more are expected.

Allied Paper Mills Champions of City

Playing to an 8 to 9 first half, the Allied Papers, aided by the sensational work of Howard Vandeberg, won from the Perry and Vilbers Thursday night, March 26th, 26 to 21, making the Allied Mills the city champions in basket ball. Vandeberg is the son of Abe Vandeberg, superintendent of the Lincoln Mills, at Elkhart, Ind.

Fred Scheid Joins Amco Twist Drill Co.

Fred Scheid, who has held an executive position with the Watervliet Paper Co., has resigned from that concern to take over the management of the Amco Twist Drill Co. Mr. Scheid is ably fitted for the position, having for years been owner of a large machine shop in Alaska.

This is a new concern for Kalamazoo, and is to locate just north of the Bradford Paper Co., near Factory Street. Charles B. Hayes is handling the stock sale for the company, who is very well known in paper circles, being a director of the Watervliet Paper Co., and handled the financing of the Bryant Paper Co. when that was organized in 1895, and many of the other mills.

There Is a Rapidly Growing Demand for No. 4 Top Felt

You will recognize Hamilton felts by two blue lines running the full width of the felt with one shorter blue line between them.

There has been a noticeable and steady increase in the orders received by the Miami Woolen mills for the Hamilton No. 4 Top Cylinder Wet Felt.

This felt meets exceptionally well the conditions that are present in modern high-speed Container Board and Chip Board mills. It is running successfully in many mills at 200 to 220 feet per minute on Container Board while on Chip Board it performs satisfactorily at 225 to 250 feet per minute.

The feature of this felt that is especially appreciated by mill men is the fact that it will run until it is worn out with less trouble from "picking" on the machine than they have ever experienced with any similar kind of felt.

The good work of No. 4 Top Cylinder wet is matter of comment among paper men. They have been telling each other about it. And our order books have shown a steady gain on that item. Once they try it they come back regularly for more.

Hamilton Felt service men are paper makers of experience, most of whom have been superintendents of good mills. They have studied felt troubles in hundreds of mills everywhere and they know nearly everything that can happen to a felt—and how to correct it. Whether you are using Hamilton felts or not call on them for help, when you need it.

SHULER & BENNINGHOFEN **Hamilton, Ohio**

The Miami Woolen Mills **Founded 1858**

Hamilton *Felts*

Canadian Section

Montreal, April 1st, 1925.

Canadian News Print Production for February Exceeds That of U. S. Mills

Production of news print by Canadian mills in February amounted to 115,624 tons, and while this was a decline from the previous month's production, the decrease was due solely to the shorter working month, the average daily production being no less than 150 tons greater than in January.

February was also noteworthy for the fact that for the first time on record the output of the Canadian mills surpassed that of the United States Mills, the production of the latter amounting to 113,831 tons, or 1,793 tons less than the Canadian production.

The rapidly increasing importance of Canada as a news print producer is further brought out by comparative production figures for the first two months of 1925 and of 1924. For the first two months of this year, Canada's production exceeded that for the corresponding months of 1924 by 14,197 tons, or 6 per cent, while the output of the U. S. mills declined by 6,621 tons, or 3 per cent.

Annual Meetings and Financial Reports

In view of the fact that 1924 is pretty generally conceded to have been a dull year in most lines of business, the numerous annual reports covering this period which have recently been made public are most encouraging and promise well for the showing that can be expected when business picks up. One important factor in these showings has been the bending of their efforts on the part of industrial administrations to greater economy of operation.

Good Showing by Belgo-Canadian.—Belgo-Canadian Paper Co., Ltd., in its report for the 21 months ended December 31, 1924, made a showing which should be very gratifying to shareholders, in that its balance of profits after all charges, including a liberal depreciation allowance, indicate an annual earning power of 10.8 per cent on the common stock. Net profits for the period, which was extended to make the fiscal year of the company coincide with the calendar year, amounted to $2,101,084, which is a monthly average profit of $100,090.38, or $1,201,084 yearly. The preferred dividends require $280,000 annually, and the balance amounts to 10.8 per cent on the common. The company shows a remarkably good financial position, with net working capital of $3,195,742, with cash, receivables and investments making up over $1,500,000 of the $5,140,199 of current assets.

This is the first financial report issued since the reorganization of the company in 1923.

Laurentide Power Had Record Year.—The annual financial statement of Laurentide Power Co., Ltd., shows total revenue from all sources for the year just ended of $1,480,862, as compared with $1,417,822 a year ago; while actual net earnings from operations were $1,238,277, as against $1,170,258 in 1923.

The increased earnings are due to the sale to the Laurentide Company, Ltd., of the company's surplus power for use in their steam boilers. This market is regarded as temporary only, leaving the company free to avail itself of a better market when such presents itself. With the bringing in of power from the St. Maurice development at La Gabelle, there is at present a surplus of power in the St. Maurice valley; but it is expected that this surplus eventually will be all taken up.

"Interlake" and "Provincial" Annual Meetings.—At the annual meeting of the Interlake Tissue Mills Co., Ltd., Toronto, a very good report was presented on the operations of the past year. George Carruthers was re-elected president and managing director; I. H. Weldon vice-president, and S. F. Duncan secretary-treasurer. The company turns out daily from 25 to 30 tons of white and colored tissues, white and colored sulphite, fruit wrappers, dry proofing papers, and light weight M. G. kraft, as well as other specialties.

The Provincial Paper Mills, Ltd., Toronto, also held their annual meeting and received an encouraging report for the year. I. H. Weldon was re-elected president, T. A. Weldon vice-president, S. F. Duncan treasurer, and W. S. Barber secretary. The board of managers remains the same as last year.

St. Maurice Paper Again Helps Union Bag.—Union Bag and Paper Corporation reports net profits for the year ended December 31, 1924, at $318,058 after depreciation and interest charges, but before federal taxes, equal to $2.17 a share on the $14,604,350 capital stock. In the previous year the net amounted to $950,709, or $6.34 a share on the $14,977,850 stock outstanding at that time.

One of the chief sources of income last year was Union Bag's holdings of capital stock of St. Maurice Paper Co., a Canadian newsprint company with mills at Three-Rivers, Que. These total 60,989 shares of $100 par of the total issue of 95,393. Regular dividends on this stock totalled $6 a share in 1924.

Price Bros. Declare Dividend.—Price Bros. & Co., Ltd., Quebec City, have declared the first quarterly dividend of one and five-eighths per cent, payable on the six and a half per cent cumulative redeemable sinking fund preferred stock of the company, for the quarter ended March 31st, payable April 1st to shareholders of record March 14, 1925. A dividend of one-half of one per cent was also declared on the common stock of the company for quarter ended March 31st.

Satisfactory Year for Canada Paper.—The annual general meeting of shareholders of Canada Paper Co., Ltd., was held recently at the office of Mr. Charles R. Hosmer, of Montreal. A very satisfactory financial statement for the year ended December 31, 1924, was presented. The following directors were elected: Charles R. Hosmer, president, replacing the late Joseph Kilgour; F. J. Campbell, vice-president and general manager; directors, Sir H. Montagu Allan, Sir Herbert S. Holt, Fred W. Molson, and Henry Balm. H. M. Thorne was appointed secretary-treasurer.

Ritchie & Ramsay Operations Satisfactory. — The annual meeting of Ritchie & Ramsay, Ltd., coated paper manufacturers, Toronto, was held during the past week, and satisfactory reports presented on the year's operations, considering the general state of the paper trade. The firm is the oldest of its kind in the Dominion, and established the first coated paper mill in Canada about thirty-three years ago.

Mr. Ritchie passed away nearly two years ago, but Mr. Ramsay is still actively associated with the business, and resigned the presidency, at the annual meeting, to become chairman of the board of directors. The officers elected for the year 1925 are: President and managing director, Geo. W. Pauline; vice-president, J. D. Montgomery; secretary-treasurer, John M. Finlay; chairman of the board of directors, C. N. Ramsay.

Whalen Pulp to Be Wound Up by Judicial Sale. — It is claimed that unsecured creditors of the Whalen Pulp and Paper Co., owning mills at Port Alice, Swanson Bay and Woodfibre, B. C., stand to lose over $1,000,000, an order having recently been issued by Mr. Justice Morrison at Vancouver, B. C., for the sale of the assets of the company on May 29th, following the application of counsel representing bond holders.

The Whalen business has been in the hands of a receiver for the last 18 months. In the application for the sale it was said that the valuation placed on the mills, timber limits, and other property, was $7,829,000, and the obligations total more than $10,000,000. There is due from whatever amount will

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be realized from the sale $4,000,000 to the bondholders and other preferred creditors.

If the sale realizes the full valuation placed on the assets, the debenture holders will receive 45 cents on the dollar. The Whalen company was one of the unfortunate ventures supported by the defunct Home Bank.

C. R. Whitehead, president of Wayagamack Pulp and Paper Co., Ltd., recently returned from England, where he spent a few weeks completing the arrangements for a loan of 425,000 pounds sterling which his company's subsidiary, Wayagamack News Limited, expects to obtain under the authority of the British Trade and Facilities Act. The purpose of this loan is to add to the present kraft pulp and paper mill a newsprint mill of 200 tons daily capacity.

St. Lawrence Paper Threatens Suit Against City of Three-Rivers

Unless the city of Three-Rivers, Que., decides to close as soon as possible the western part of Notre Dame street, which is part of the National Highway between Montreal and Quebec, the St. Lawrence Paper Mills, Ltd., will immediately sue the city for $400,000, was the warning recently given by Philippe Bigue, K. C., representing the company, to the Three-Rivers City Council.

As soon as the street shall have been closed, the company intend to proceed with plans for enlarging their plant so as to double its production of paper. Two new machines will be installed, and a number of new buildings will be erected the total outlay being estimated at about $2,500,000.

International Paper Plan Big Canadian Expansion

One of the most important developments of recent years in the Canadian pulp and paper industry is the decision of the International Paper Co., Ltd., to acquire the assets and properties of the defunct Riordon organization, and to enter on an extensive building program in Canada. At a meeting of shareholders of International Paper held last week, approval was voted of the plan to increase the amount of common stock from $20,000,000 to $50,000,000, create $50,000,000 new 7 per cent preferred stock, and a new 6 per cent bond issue, about $15,000,000 of which will be offered to the public and $7,000,000 used to take over the Riordon properties.

The plans announced so far comprise enlargement of the present mill at Three-Rivers to daily capacity of 450 tons of newsprint, and ultimately to 650 tons, construction of a mill with a daily capacity of 200 tons or more of newsprint at Chelsea, Que., on the Gatineau River, within a few miles of the City of Ottawa, and operation of the three mills at Kipawa, Que.; Hawkesbury, Ont., and Merritton, Ont., which have a combined capacity of about 365 tons of bleached and easy bleaching sulphite. Expansion of the Three-Rivers mill is already under way and the plant is expected to be turning out 450 tons a day by the end of the year, further expansion to be carried out when deemed advisable. The construction of the Chelsea mill will doubtless be deferred until the consumption has overtaken the production, as there is at present insufficient demand to absorb the full production which is at present contemplated by the Canadian newsprint producers; this may take a few years, or may be hastened should International decide to shut down definitely some of its newsprint mills across the border. It is also rumored that the company may build a large pulp and paper mill in New Brunswick as soon as the Grand Falls of the St. John River have been harnessed; but this has not yet been officially confirmed.

Actual operations will be carried on by a subsidiary company to be organized as the Canadian International Paper Co., which will probably include the St. Maurice Lumber Co., the present Canadian subsidiary of International.

Grand Falls Power Project Awaits Final Consent

All preparatory work in connection with the development of hydro-electric power at Grand Falls, N. B., by the New Brunswick Government, has been completed, and all that is needed now to proceed with the work is the decision of the International Waterways Commission to permit the undertaking. An act was recently passed in the Quebec Legislature giving the New Brunswick Power Commission rights of development in the Province of Quebec, more particularly as regards construction of dams for holding back waters and forming storage reservoirs. International Paper, which own considerable rights at the site of the proposed development, have signified their willingness to facilitate the development in any way that they reasonably can, while at the same time protecting their own interests.

The International Waterways Commission held a session at Van Buren, Me., on the 24th of last month, and adjourned till the 7th of this month, when they will meet in Washington.

The project contemplates the development of between 60,000 and 80,000 horsepower, and would require about two years for completion, at an estimated outlay, without transmission lines, of $6,000,000.

The budget recently brought down in the House of Commons at Ottawa provides for a tax of $1.95 per horsepower year on all electrical power exported out of Canada. It has been suggested that now that the principle of export taxation has been given official recognition and sanction, pulpwood should immediately be placed on the list.

According to Angus McLean, president of the Bathurst Company, Ltd., that company intend enlarging their newsprint mill at Bathurst, N. B., to the two machine capacity originally planned. The mill at present has one machine which turns out about 65 tons of newsprint a day.

Work has commenced on the erection of 400 permanent homes for the pulp and paper mill workers at Corner Brook, Nfd. The houses will be of the most modern type and of various designs to harmonize with the hotel and other buildings which have already been erected in the model company town planned by the Newfoundland Power and Paper Co.

Canadian Machine Makes World Production Records

Some world's records production have recently been made at the mill of the Keewatin Lumber Co., Ltd., Kenora, Ont., on the new machine recently installed. On March 3rd this machine, running at 830 feet a minute on standard newsprint, basic weight 32.2 pounds, produced 112.3 tons. On March 4th, the same machine running at 855 feet turned out 117 tons. On the following day at the same weight and speed its output was 119 tons. These are said to be world production records for a single machine.

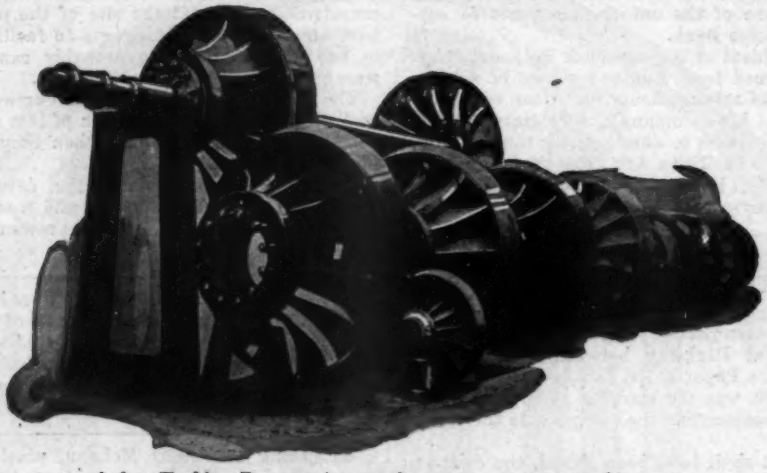
Canadian Comstock Secures Electrical Contract from International

International Paper has awarded the contract for the complete electrical construction for the large extensions of their pulp and paper mill at Three Rivers, Que., to the Canadian Comstock Co., of Montreal and Toronto. The mill, as it stands at present, is entirely operated by electricity. Some 30,000 horsepower is used by means of a large number of motors varying in power from half a horsepower to 2,500 horsepower. The contract for this installation, which was carried out in 1922, was then and is still the largest electrical contract ever awarded in Canada.

Under the present contract, the company will rearrange the high voltage system at the primary 60,000 volt station, the mill meanwhile being maintained in operation and a secondary station being installed, together with switching gear, electric boilers, transformers and protective electrical equipment. The electrical energy from the high tension transmission lines will thus be controlled, transformed, metered, distributed, and connected, and the extensions to the mill, when completed will double the present capacity of the plant.

Groundwood Seizure

To enforce payment of tax arrears, totalling $75,500, the treasurer of the municipality of Fort Frances, Ont., recently seized 2,500 tons of groundwood owned by the Fort Frances



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Pulp and Paper Co., Ltd., and has arranged for its immediate sale. The company, on the other hand, has an account of $16,000 against the town for electrical energy supplied.

The courts fixed the price at $14 per horsepower, but claiming $25 per horsepower the company appealed the decision. The appeal was dismissed with costs by Mr. Justice Meredith, at Toronto; but the company have a further appeal pending in the courts.

Groundwood Mill on Manitoulin Island

McLarty Bros. and Ed. Charters, Sault Ste. Marie, Ont., who have been given a part of the contract for erecting the half million dollar groundwood mill on the Kagawong River, Manitoulin Island, Ont., will put up the main mill, the docks, the wood room, and 1,800 feet of 18-foot water power canal. The main mill will be 32 feet by 90 feet, two stories high, and will be of brick and concrete. The wood room will be 32 feet by 52 feet, one story high, and will also be of brick and concrete, both departments have concrete floors.

In connection with the construction of the mill, it will be necessary to build 2,250 feet of wood-stay flue to take the water to the wheels from the end of the canal. The mill will be equipped with three grinders and will have a capacity of about 20 tons of pulp a day.

Frank J. D. Barnjum, of Montreal, who has been the outstanding champion of the placing an embargo on the exportation of Canadian pulpwood, has gone on an extended trip to China and the Orient, sailing from Vancouver, B. C., early last month.

Dominion Engineering Company Makes Better Showing

The report of the Dominion Engineering Works, Ltd., covering the fiscal period June 1st, 1924 (when the company was reorganized) to December 31st, 1924, shows profits from contracts and miscellaneous earnings, after providing for contingencies, to be $115,344. A reserve for depreciation of $58,357 is allowed, leaving a net balance of $56,986 before providing for income tax. In 1923, the old company showed an operating loss of $35,401, which did not take into consideration any allowance for depreciation.

Dominion Engineering, which is one of the most important Canadian manufacturers of paper making machinery, and which constructed the first paper machines to run at 1,000 feet per minute, numbers several of the large Canadian paper companies amongst its most important shareholders.

Brompton to Double News Print Output

Announcement has been made by the Brompton Pulp and Paper Co. of its intention to construct a newsprint mill during the present year. F. N. McCrea, M. P., president of the company, when spoken to recently, confirmed the report of the company's intention in this respect. "We hope to erect a newsprint mill of about 110 tons daily capacity, and this will be located at Bromptonville, Que., where we have a pulp mill at the present time. We hope to be making paper at Bromptonville by the end of the year."

Mr. McCrea pointed out that when the pulp mill was erected at Bromptonville it was planned with the view of eventually erecting a newsprint mill beside it. "This," continued Mr. McCrea, "we figure will be an economical move on our part. At present we are sending a part of the product of our pulp mill to our Groveton, N. H., plant, and the balance is being shipped to other points in the States. It is practically all being exported. When our new paper mill is going we expect to consume practically all the output of the pulp mill."

The power development and other features of the present construction will work in with the new mill project, so that the cost will be much less than a new development.

During February, the average daily output of the sulphite mill of the Mattagami Pulp and Paper Co., at Smooth Rock Falls, Ont., was 190 tons. The capacity of the mill was originally estimated at 150 tons a day. The entire output of the mill is finding a ready market in the United States. In view of the low price prevailing for unbleached sulphite, S. R.

DOUBLY SURE

The winding drums of a high speed roll-winder must be accurately journaled. On Camachines, the drumheads are turned separately and bolted to collars located inside the drums. It is good machine shop practice to shrink the drum around the collars. It is the practice of our machine shop to make doubly sure that these collars are firmly held in place, for after the shrink, the collars are electrically welded to the drums. Molten steel inseparably connects collar and drum.

This means another factory operation, it is true; yet it is this attention to the seemingly minor details which is the reason for the long life, freedom from maintenance costs, and capacity for continuous heavy duty service which characterize Cameron Machines. In the paper mill, converting plant, warehouse or factory, steady year-after-year dependability in the roll-winder can be had only at the expense of reliable workmanship. CAMACHINES are good roll-winders—they are built right.

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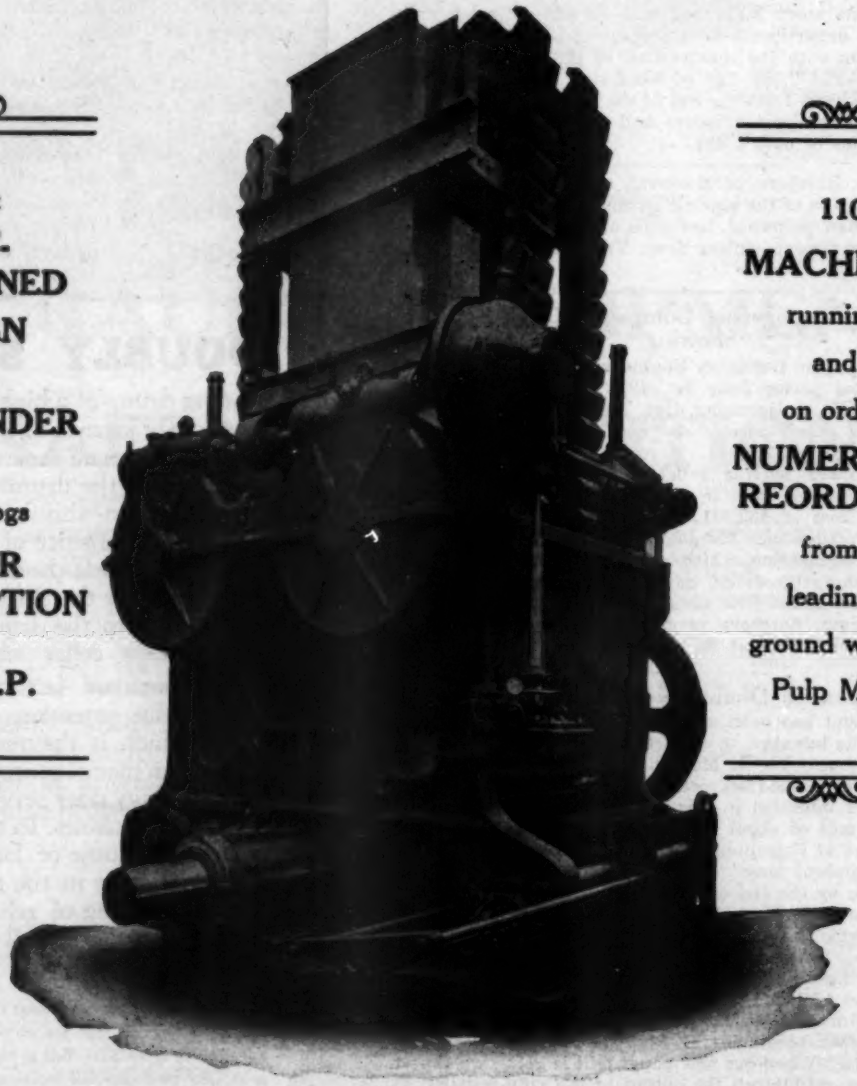

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MACHINES
running
and
on order
NUMEROUS REORDERS
from
leading
ground wood
Pulp Mills

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280 Madison Ave. **New York City**

Armstrong, acting for the receivers and general supervisor of the company's activities, considers that the only solution of the company's and bondholders' difficulties is to be found in installing a bleaching plant. To convert the plant into a bleached sulphite mill would require the expenditure of at least $300,000; but Mr. Armstrong estimates that, with production unimpaired, the increased revenues derived from the bleached pulp would in one year more than cover this entire outlay.

The recent earthquake seems to have attained its maximum severity along the lower St. Lawrence, according to reports from various pulp and paper manufacturing centers. It was also very severe between Montreal and Quebec, and caused great alarm, though fortunately relatively little damage, at Three Rivers and Shawinigan Falls. The main damage reported from Three Rivers was the crumbling of the top of a 243-foot chimney at the Wayagamack Pulp and Paper Company's plant.

An absolute denial was issued from Quebec to the story which had been going the round of the papers to the effect that Sir Herbert Holt, one of the leading financiers of Montreal, had secured control of the gigantic Duke-Price power development at the head of the Saguenay River.

The Sturgeon Falls mill of the Spanish River Pulp and Paper Mills, Ltd., completed the month of February with a no-accident record at the plant, which demonstrates the interest taken by both maangement and employees in safety work.

The Provincial Paper Mills, Toronto, have in contemplation the erection of some extensions to the buildings at the Montrose division, at Thorold, Ont., designed to facilitate the more rapid handling of the output. The addition will involve no additional new equipment in the mill.

Efficient Accident Prevention

A. P. Costigane, safety engineer of the Ontario Pulp and Paper Makers' Safety Association, Toronto, accompanied by J. T. Turner, safety manager of the Laurentide Company, Grand'Mére, Que., paid a visit to the pulp and paper mills in the St. Catharine, Merritton and Thorold districts. Mr. Turner expressed himself as well pleased at the co-operative spirit shown both by management and men in the work of safety, and commented favorably on the good housekeeping of the mills, which is one of the most efficient ways of keeping down accidents in the various mills.

The accident report of Abitibi Power and Paper Company's mill at Iroquois Falls, Ont., for the year 1924 shows an improvement over 1923 in every way. The safeguarding of the machinery in the mill is complete and regular inspection is made of all parts of the mill. All dangerous places reported are promptly inspected and guarded, if possible. The number of accidents which occurred during 1924 was 196, a decrease of 25 as compared with 1923. Of these 196 accidents 147, or 75 per cent, occurred in four departments, paper mill, grinder room, wood room and mechanical department, which together employ 52 per cent of the employees in the mill. None of the accidents were fatal.

Lincoln Mills Assets Sold

The assets of Lincoln Mills, Ltd., Merritton, Ont., and timber lands and rights on Gaspé Peninsula, totalling 180,000 acres of land and licenses covering lands on which there is said to be an estimated stumpage of 1,500,000 cords, was recently sold at judicial sale at Toronto, for $5,750, subject to bond mortgages totalling $2,029,500, upon which there were arrears of interest totalling $157,000, and subject also to arrears of taxes, etc. A. W. Taylor is the purchaser. The purchase does not include any right of action by the liquidator against any director or officer of the company for misfeasance or breach of trust.

The manufacturing operations of the company have been carried on in what are known as the Lincoln Mill, the Lybster mill, and the sulphite mill. The Lincoln mill is a stone and concrete structure, and houses an electically driven 92-inch

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As the edition of Mr. Croft's book is limited, copies are reserved for engineers and educational institutions.

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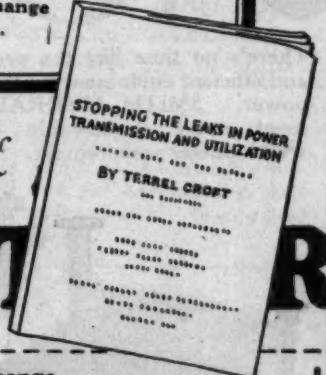

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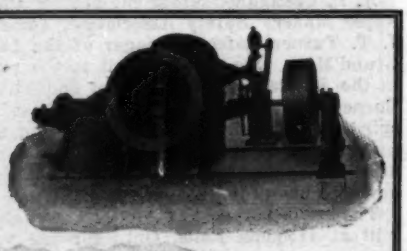

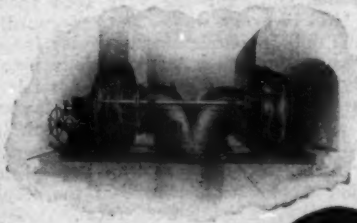

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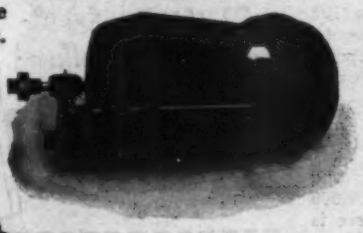

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1925

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cylinder paper machine, which turns out 2,000 tons a year of wrapping paper and heavy specialties. One department is equipped for making and printing paper flour bags, and has an annual capacity of 6,000,000 of these. The Lybster mill is equipped for the manufacture of greaseproof, glassine, and writing papers, with an annual capacity of about 4,500 tons.

Great Lakes Expansion

The Great Lakes Paper Company's groundwood mill at Fort William, Ont., is running to capacity and turning out between 170 and 180 tons daily, which is being sold to the Fort Frances Pulp and Paper Co., Fort Frances, Ont. The Great Lakes Company this season is purchasing the greater proportion of its requirement of 45,000 cords from the settlers, and the remainder from contractors. It is their policy to buy wood in the open market and thus conserve their limits for future supplies.

It is reported that the company will proceed this spring with the erection of a 200-ton newsprint mill and that some material is already on the ground preparatory to starting construction.

Making Abitibi Safe

The Abitibi Power and Paper Co., of Iroquois Falls, Ont., is giving considerable attention to safety work and accident prevention in their big mill. Both men and management are intensely interested in keeping down the record of mishaps and lessening the number of days of last time.

A Safety Committee has been appointed, consisting of Alec Dewar, as chairman, C. R. Stewart as secretary, together with other members, who receive information regarding unsafe places in the mills and talk over safety matters with the working force with a view to keeping down accident hazards to the lowest possible point.

S. A. McLernon, New Birks Building, Montreal, has been appointed exclusive sales representative in Quebec, Ont., Newfoundland and the Maritime Provinces for paper mill pumping equipment manufactured by the Nash Engineering Co. of Canada, Ltd.

The Provincial Paper Mills, Ltd., shipped one hundred tons of book paper to Australia and New Zealand recently. The product was mainly from the Mille Roches division. The company report a good movement of paper on export account, and predict that when the new trade treaty between Canada and Australia comes into effect the volume of trade in paper lines without failure will increase greatly.

Mr. J. N. Stephenson, who represented the Canadian Pulp and Paper Industry at the British Empire Exhibition at Wembley, last year, has presented to the Forest Products Laboratories, Montreal, a stalk of papyrus which was given to him by the Director of the Botanical Gardens at Kew, London.

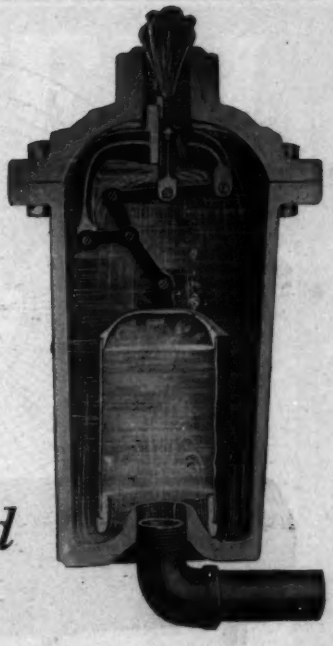
St. Maurice Paper Secures Fixed Valuation

At a special meeting held recently, the city council of Cap-de-la-Madeleine, a suburb of Three Rivers, Que., came to an agreement with the St. Maurice Paper Company by which in exchange for a fixed valuation of its plant for a period of twenty years the company agrees to pay immediately its municipal taxes, renouncing the exemption to which it was entitled until 1935.

The valuation was fixed at $2,500,000, and beginning this year the city will receive from the company taxes amounting to $30,000 annually. The same amount will be paid to the school commission, which has been receiving $17,000 annually. The agreement is subject to ratification by the Legislature.

Frank W. Clarke, of Quebec, president of the Canadian Pulp and Paper Association, has gone on a business trip to England and will be absent for several weeks.

Gordon J. Thistlethwaite, popularly known as "Scoop" by every one in the mill, has been appointed electrical super-



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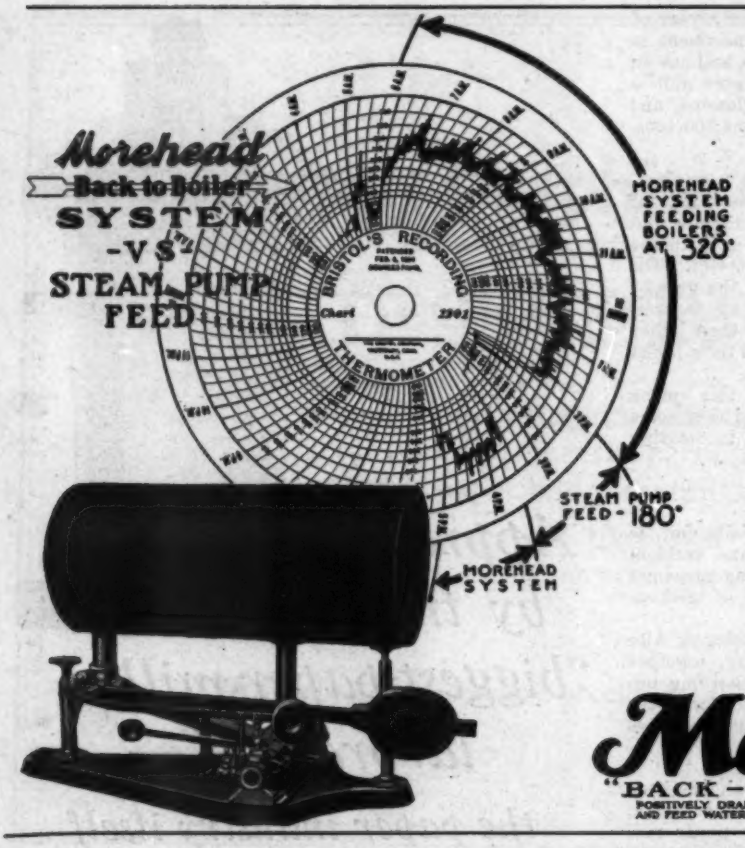

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"VALLEIRON"

intendent of the Abitibi Power and Paper Co.'s plant at Iroquois Falls, Ont. He joined the company in the latter part of 1915 as electrician, and has risen steadily to his present responsible position.

Over the period from February 17th to March 5th, inclusive, comprising 15 working days, Donnacona's No. 3 machine turned out 1,519.8 tons of newsprint, an average of 101.4 tons a day. The machine is an improved Fourdrinier, 234 inches wide, constructed by Chas. Walsmsley & Co. If the full width of the machine could have been utilized, the total production would have been 1,581 tons, an average of 105.8 tons daily.

Fraser Companies Extension Plans

Fraser Companies, Ltd., expect to commence operations on the construction of their new paper mill at Madawaska, Me., across the St. John River from Edmundston, N. B., within a comparatively few weeks, according to the best information obtainable. It is expected that the way will soon be cleared for commencement of actual operations. So far some of the most necessary rights in connection with the project have not been obtained. These include permission to use the International bridge between Edmundston and Madawaska for supporting the projected steel pipes to convey their pulp in slush form from their pulp mill, on the Canadian side, to the new paper mill on the United States side of the St. John river.

Included in the project is an extensive housing programme, said to include construction of houses at Madawaska, which will cost at least $200,000. The site for the housing features of the project, as well as for the mill itself, has been bought.

The Canadian Paperboard Company, 2 Seigneurs St., Montreal, have plans under way for the construction of a new steam-operated electric power plant, with initial capacity of about 400 horsepower, to be used for mill service. Kerry and Chace, Ltd., Toronto, Ont., are the engineers.

Strathcona Paper Co., Strathcona, Ont., who are manufacturers of building and wrapping papers and all grades of boxboard, state that the past year was a fair one with them and this season they are operating on a larger scale than last, with both machines running steadily. Several new lines of board have been turned out by the company, who have added three boilers and a new brick chimney to their plant and, in the beater room, have installed two 1,500-pound beaters and a 125-horsepower motor.

John Brassington, late of Port Arthur, Ont., has taken up his residence in Chicago, where he intends developing a new machine for use in pulp and paper manufacture which he has invented.

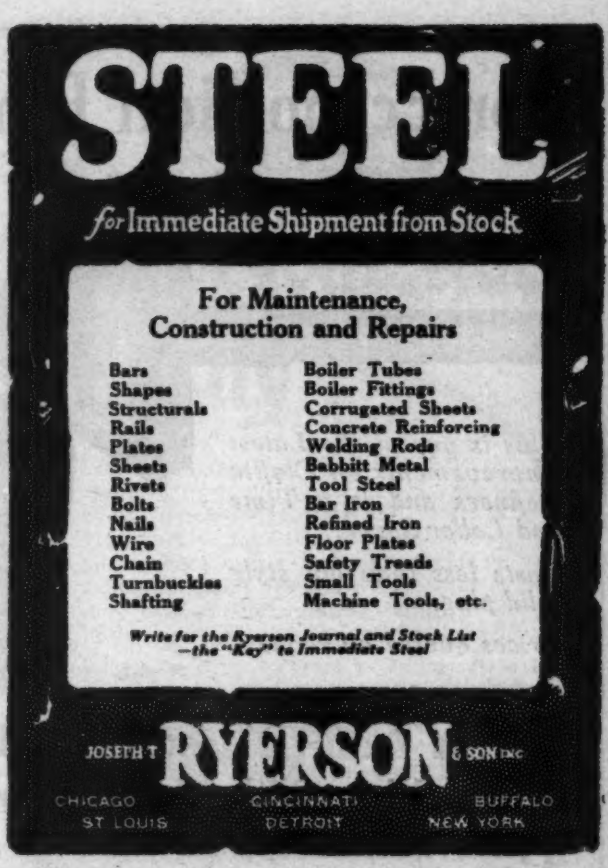
The Porcupine Pulp and Lumber Co., Hoyle, Ont., which is a subsidiary concern of the Cliff Paper Co., Niagara Falls, N. Y., has within the past few months purchased a large quantity of standing timber, all black spruce, and will double its annual cut.

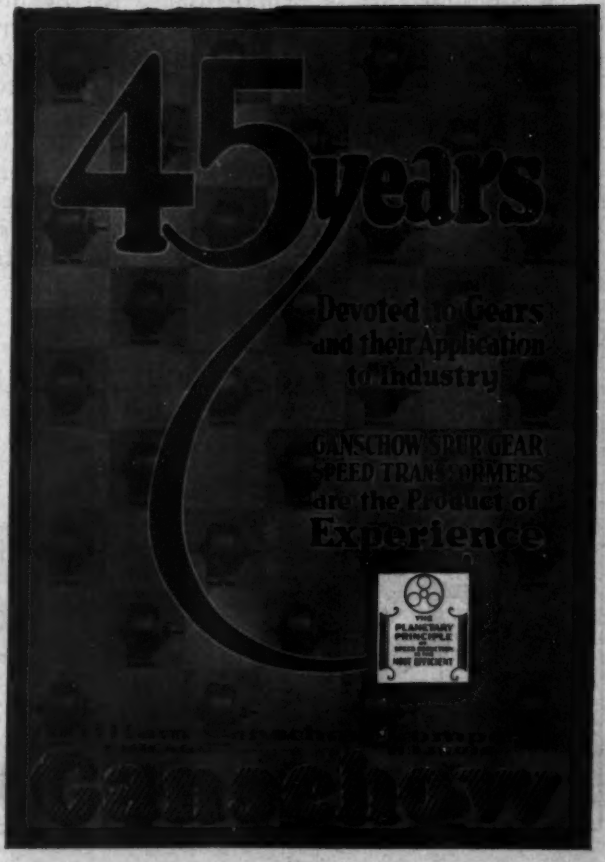
Howard Smith, president of Howard Smith Paper Mills, Ltd., Montreal, who spent some time in Switzerland for the benefit of his health, has returned home and is now able to attend to his former duties. Mr. Smith says that business is gradually improving.

The week of Sunday, April 19th, has been set aside by royal proclamation as "Save-the-Forests" week.

The Sissiboo mill of the Clyde & Sissiboo Pulp and Paper Co. has resumed operations, following a period of idleness due to water shortage. This plant is situated on the Sissiboo River at Weymouth, N. S.

A mill operative recently sprained his knee when he fell from a pile of wet laps. Another received a severe fracture of his arm when it was caught in a winder.

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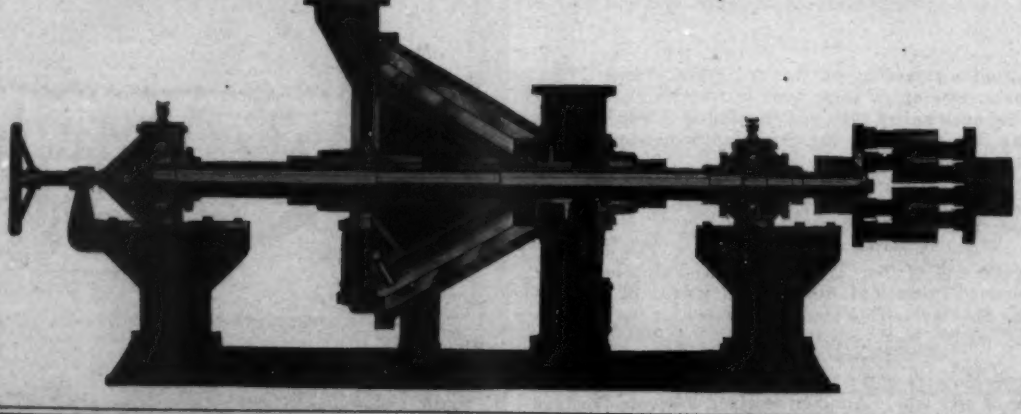

Great Britain Correspondence

March 15, 1925.

Conditions in British Paper Industry

Although there is no doubt that a greater volume of paper has been bought in the home market during the last few weeks, reports from the trade in all branches show no very noticeable improvement in trade compared with a year ago. The Times Trade Supplement, commenting on the general trade situation, says:

"The general condition of industry is almost immediately reflected by the printing trade, and in this industry there has been a notable absorption of unemployed labor. Taking everything into account it cannot be denied that there has been an improvement in the home consumption of paper, and a glance at the Board of Trade returns for January reveals increases in both imports and exports."

An examination of the imported papers and boards shows that printings and writings are down in volume. Packings and wrappings are up by nearly twenty per cent., as are also coated papers, while mill and leather boards have increased by twenty-five per cent., and strawboards have been much more than doubled compared with the corresponding month last year. The board import indicated a larger volume of general trade in this country and increased domestic spending power. It also reflects the prolongation of the period of ice-free conditions in and around the Scandinavian ports and Dutch canals.

The export returns show a considerable improvement, which, for both the whole of last year and particularly for the period of January this year, is practically accounted for by the demands from Australia. Unfortunately, while Australia's takings of printed papers, principally newsprint, rose by over 200,000 hundredweight last year, the exports of writing paper to the Commonwealth fell away to the extent of 20,000 hundredweight. No improvement in this feature is reported for January this year, but printings have reached the high water-mark of 208,091 hundredweight, due to the placing of orders which had previously been held up, awaiting decisions on the newsprint tariff preference to Canada. The failure to settle this question has stood our own newsprint mills in good stead, and is causing increased business to be placed on this side. As may be expected, the English newsprint mills are pretty well supplied with forward business. Home demand is also quite good, but there is keen competition from Continental sources, and quite recently some very low-cut quotations have been commented upon. In fact, foreign newsprint has been offered at figures which just about equal the English paper makers' costs. Once again the extreme importance of the Australian newsprint preference has to be emphasized.

The esparto mills are fortunate in having a steady flow of business, and some of the more progressive manufacturers are booked well ahead, mainly from home sources. Esparto writings, printings, imitation arts, pulp boards, tinted paper, and good class middles are all finding a good market. Prospects are bright, and profits are reasonably profitable. The foreign competitor cannot produce anything equal to the British esparto paper and board product.

Fine writing mills are far from being overworked. There is a slow improvement in the home demands, but export business is not at all satisfactory. Much more remains to be done in the matter of creating and maintaining our markets abroad. Reliance on foreign agents and the British reputation of the past are not sufficient. British paper manufacturers are beginning to realize that a closer study of foreign conditions and requirements is necessary, if they are to withstand the severe competition in both foreign and colonial markets. It has been suggested that co-operation in an export policy would more efficiently safeguard the interests of British paper industry overseas—it remains to be seen whether any steps will be taken in this direction.

Technical Section Meeting

Mr. D. T. McIvor, M. I. Mech. T., gave an interesting and instructive lecture at the last meeting of the Technical Section of the London Division of the British Paper Trade Asso-

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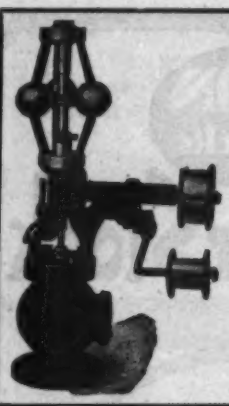

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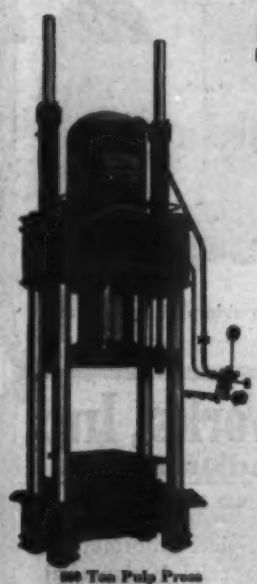
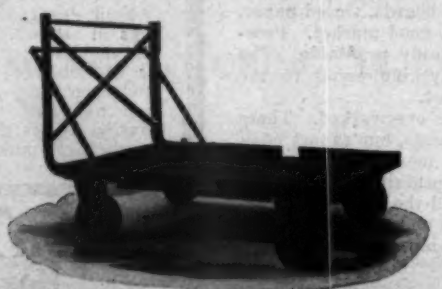
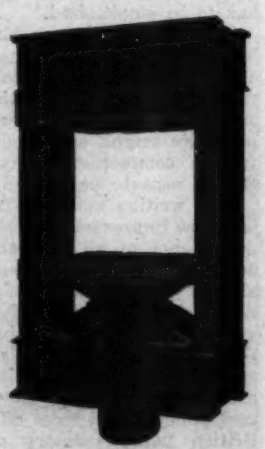


800 Ton Pulp Press



Southwark Pulp Truck, for Use with Press Shown at the Left. Saves Time and Labor



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ciation. Mr. H. Goldshaw, the chairman of the division, presided over a very large gathering, which proved to be a record attendance for this division.

Mr. McIvor began by pointing out that the profit earning capacity of existing mills was quite as important to the industry and to the country at large as that of new mills. Very many mills in this country were still using fuel, water, and labor, three important items bearing on the cost of production, in far from effective ways, and improvements were usually initiated for the purpose of reducing consumption of these. He had often heard it said by fellow engineers interested in other industries and in general engineering that successful paper mills were continually spending money on alterations and additions to a much greater extent than most other trades with which they came in contact. This surely seemed to point the way for all mills and not only a few of them.

Each particular mill had its peculiar chain of units interdependent on one another, even those making the same classes of paper. The boiler plant occurred to the engineer as the commencing point for investigation and he pointed out that the great value of devices to indicate to those operating the plant what was going on inside had only to be realized to insure that they would be adopted at once in some form or another.

After commenting at some length on the value of continuous measurement of both coal and water, Mr. McIvor went on to observe that the greatest possible care and study must be given to the whole layout of the mill, for both present requirements and future possibilities, in coming to a decision as to the type, size, proportions, and location of the new unit or units.

In touching on the paper-making machine itself, he said he felt some diffidence since it was the "sanctum sanctorum" of the mill, but they so often heard the saying "we cannot make this sheet on such and such a machine at more than so many feet a minute" that he thought they would be doing less than their duty if they avoided discussing it.

Speaking only as an engineer, but as one who had had some experience in mills making practically all grades with the exception of "hand made" and "kraft," he believed that only comparatively small changes in design or equipment were sufficient in all cases to enable higher making speeds to be attained.

A general discussion followed the lecture.

Southern News

April 1, 1925.

Improvements at Cherry River Paper Company

During the past year, the Cherry River Paper Co., of Richmond, W. Va., has made a number of improvements in the mill equipment. Wood preparation costs have been materially reduced by the erection of a new barking plant containing two Paulson drum barkers and bark presses. The layout of the barking plant is unique in that only five conveyors are used to handle the wood and bark and deliver it to the wood room and boiler plant, which reduces the cost of handling to a minimum.

The beater room has been rearranged and five 2000-pound Niagara beaters installed.

A bleach plant is now being built which will include a bleacher of the Collins type, furnished by Moore & White, an electro breaching gas chlorine absorption system along with the necessary tanks and other equipment to go with them. The capacity of the bleach plant will be thirteen tons per day with the provision made for future installation of additional units.

Reconstruction of the power plant and groundwood pulp mill of the Harper's Ferry Paper Co., Harper's Ferry, W. Va., which burned on January 13th, is now well under way. One 325 KVA and two 750 KVA new General Electric generators are to be installed in the power plant. It is expected that the power plant will be operating by June first.

Receipt of applications for junior technologist at an entrance salary of $1,860 a year, and assistant scientific aid, at an entrance salary of $1,500 a year, will close April 25. The examinations are to fill vacancies in the Bureau of Standards, Washington, D. C.

GARDCO
A PAINT WITH A PURPOSE
Protection of metals regardless of conditions
GARDCO PAINT PRODUCTS COMPANY
53 WEST JACKSON BLVD., CHICAGO
Distributors in Principal Cities
PAINTS

MAGIC BOILER PRESERVATIVE
"The Pioneer Boiler Treatment"
Positively removes and prevents scale, stops minor leaks, pitting and corrosion
GARRATT-CALLAHAN CO.
27 South Clinton Street, Chicago
148-156 Spear St. San Francisco
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ESTABLISHED 1904

Steel Plate Construction
Steel Storage Tanks, Blast Furnaces, Gas Holders
Steel River Barges and Plate Work of all Kinds
Steel Transmission Towers
RITER-CONLEY COMPANY
General Offices, Pittsburgh, Pa.

HAMLER BOILER AND TANK CO.
FABRICATORS OF STEEL PLATE FOR OVER SIXTY YEARS
SEND DRAWINGS AND SPECIFICATIONS FOR PRICES
CHICAGO-MINNEAPOLIS-ST. LOUIS-NEW YORK

Appleton

Fourdrinier Wires

Cylinder Wires

Save-All Wires

Washer Wires

In Brass and Phosphor Bronze

"Appleton Wires Are Good Wires"

APPLETON WIRE WORKS, Inc.
Appleton, Wis., U. S. A.

Ohio News

April 1, 1925.

Edwardes and Dittoe Address Superintendents on Water Utilization

From the addresses of Vance P. Edwardes, engineer in forest products and chairman of the sub-committee on White Water of T. A. P. P. I., and W. H. Dittoe, chief engineer of the Ohio State Department of Health, members of the Miami Valley Division of the Pulp and Paper Mill Superintendents' Association learned a great many helpful points upon the subject of "Water Utilization" at their March meeting in the Hotel Manchester Saturday evening, March 28.

Mr. Edwardes made special reference to economic losses, stream pollution, state regulation, plant surveys, collecting and disseminating information, save-all equipment and the effect of using the recovered fiber upon the product.

His figures showing the nuisance and loss arising from the discharge of paper mill effluent into streams were surprising and gave the paper men something serious to think about. Mr. Edwardes regretfully pointed to the disregard of manufacturers for this item of loss, as evidenced by trend of responses to the questionnaires sent out by the Forest Products Laboratory in investigation of the matter. Only a small percentage of the respondents knew or apparently cared about the amount of valuable material carried down the stream by the mill effluent, amounting in one instance of the speaker to 15 tons of pulp a day going down the mill sewer.

He deplored that this condition was looked upon as a perfectly normal operation, since few save-alls can take care of the overload of stock, making 150 tons of news, wrapper and tissue a day, in this case. He continued to show that the lowest actual loss is 1½ per cent, while losses of 10 per cent are quite common. By remedying this defect, he showed that at a 100-ton mill a reduction in stock losses equal to 3 per cent of the daily run will amount to a saving of $27,000 a year.

He cited numerous other accesses to waste, bringing them all into the focus of the Forest Products Laboratory as the best line of attack, acting as a central agency for collecting and disseminating information on the subject. "So far," he said, "the Laboratory's waste committee, functioning to the end that conditions might be bettered in many mills and a general interest aroused which would lead to the improved operation throughout the industry, has received little cooperation from manufacturers, probably because the idea has not been 'sold' to the right men, or because of the skepticism about getting something for next to nothing."

Mr. Dittoe treated the subject of stream pollution from the standpoint of health and of the steps taken in Ohio to solve the problem. "Paper mill men as private individuals would not think of disposing of their household refuse by throwing it over the fence into the neighbors' yard, but they collectively discharge the wastes from manufacturing plants into the streams, thus polluting the water supply of communities," he said.

According to Mr. Dittoe, Ohio has under way a survey of the various streams in order to classify them to the degree of pollution now existing. This is a problem which the industries must give their attention to, either from a selfish standpoint or one of the public good. Should they continue to neglect it, extremely drastic legislation will be enacted. "It is not the duty of state officials to tell the industry how to prevent stream pollution, they can only point out conditions, leaving it absolutely up to you superintendents to solve your own problem."

Falkenstine Bill for Abandonment of Canal Tabled

Paper manufacturers of the lower Great Miami Valley won a victory in the Ohio legislature by the tabling of the Falkenstine bill, providing for the abandonment of the Miami & Erie canal south of the state dam, a point several miles north of Middletown to Cincinnati. Although Governor Donahey has signed papers for the abandonment of the canal north of the state dam, such a plan through this section would place the string of paper mills in and south of Middletown in a serious

Jennings Flat Box Pump, for removing air and water from flat boxes

The Jennings Flat Box Pump

COMPACTNESS, economy and efficiency are the three outstanding characteristics of the new Jennings Flat Box Pump.

Compactness—because the Jennings Pump really comprises two pumps, an air unit, and a water unit, in a single casing.

Economy—because the air pump removes air only, and the water pump handles the water. The air, representing by far the larger part of the volume of fluid handled, is discharged *directly to the atmosphere without back pressure.* The water may be returned to the machine well, or discharged under pressure to the beaters or stock chest. By handling the air and water separately, a material saving in horsepower is effected.

Efficiency—because the centrifugal water pump is not obliged to handle air with the water. Therefore it can operate at high efficiency. Similarly, the air pump has high efficiency. For complete facts, write for literature.

NASH ENGINEERING CO.

So. Norwalk Connecticut

New England Representative: Mr. Gilbert Howe Gleason, Nottingham Building, Copley Sq., Boston.
Western Representative: Mr. Thomas H. Savery, Jr., 1524 Republic Bldg., Chicago.

Jennings Hytor

2036-38

THE DRAPER FELT

Unexcelled for strength, openness, resiliency, and general running qualities. Made to meet the most exacting conditions on all types of machines and all kinds of papers. Only one grade and that the highest.

Made by

DRAPER BROTHERS COMPANY

CANTON, MASS.

Woolen Manufacturers Since 1856

REPRESENTATIVES

L. H. BREYFOGLE, Kalamazoo, Mich. INTERNATIONAL TRADING CO., Philadelphia, Pa.

Our Deep Cushion Resilient Type Rubber Rolls Are Springy but Not Plastic They Are Built Like a Tire

Made by

STOWE & WOODWARD COMPANY

The Rubber Roll Makers NEWTON UPPER FALLS, MASS.

AN investment in our beater room equipment means better beaters and jordans.

Our equipment embraces the most approved and advanced designs, together with heavier construction and the most careful workmanship.

THE NOBLE & WOOD MACHINE CO.

Hoosick Falls New York

predicament. The Middletown Hydraulic Co., which supplies hydraulic power to these mills, uses the old canal bed south of the state dam as a spillway. Should the canal be abandoned, another spillway would have to be constructed at an enormous expense.

Paper men of the lower Miami Valley section who fought it and drafted the victorious bill for the retention of the canal right of way were W. S. LaRue, vice president of the Richardson Paper Co., Lockland, O.; Harry T. Ratliff, traffic manager of the Champion Coated Paper Co., Hamilton, and M. A. Thomas, president of the Wardlow Thomas Paper Co., of Middletown, working with Attorney G. W. A. Wilmer, of Middletown; Howard R. Heyman, president of the Hamilton Chamber of Commerce; Clifford Brown, Cincinnati attorney and president of the Hamilton county board of commissioners, and Howard M. Wilson, official representative of the Cincinnati Chamber of Commerce.

Exchange Club Formed

Douglas Robbins, secretary and treasurer of the Sabin Robbins Paper Co., is one of the four incorporators of an Exchange club, in Middletown, for which incorporation papers have been granted at Columbus. It is incorporated for $5,000. Robbins' three associates in the incorporation are F. A. Tobitt, Calvin W. Verity and M. S. Phillips, all of the American Rolling Mill Co., the group representing the two leading industries of Middletown.

State headquarters of the Exchange clubs has started a drive to stop the passage of too many laws, claimed to be a burden to the country, in line with President Coolidge's thought that there is too much legislation and not enough law enforcement.

G. & H. Baseball Team Out for '25 Championship

Preparing for the opening of the baseball season, the Gardner & Harvey Paper Co. team, champions of the K. I. O. league last year, are confident of another victory. At a gab and grub fest recently, the Middletown athletes were spurred on to the decision of again bringing home the pennant this year by their supporters in the Gardner & Harvey Co., who rallied enthusiastically to their predicted success for the coming season.

J. M. Dugan, president of the K. I. O. league, complimented the team for the way it took the pennant away from teams in the tri-state league, while some good advice was passed on to the team by William Carpenter, International league umpire.

Three new teams are in the run for the tri-state ribbon this year—Greenfield, Oakley and Carthage, O. Walter Hadley is manager of the Middletown baseball aggregation.

Will Investigate Foreign Markets

Investigation of continental pulp and paper markets is the new connection of Lt.-Col. Alan Goldsmith, of Middletown, with the G. H. Mead Paper Co., of Dayton. Goldsmith left in March for Europe to spend a year on this business tour.

He is efficient and thorough in the knowledge of foreign business conditions, gained through his foreign experiences as secretary of the United States Department of Commerce under Secretary Hoover. His intensive study of the situation will prove invaluable to the Mead Co.

Mrs. Goldsmith and their young son will remain with him in Europe.

H. L. Dibble, former superintendent of the cost division of the Gardner & Harvey Paper Co., is now connected with the Standard Paper Co., of Kalamazoo, Mich., in a similar capacity. Dibble came here from Clyde, O., several years ago when the Universal Paper Products Co.'s interests were removed to Middletown. This company has now been incorporated in the Gardner & Harvey Co.

The Wardlow-Thomas Paper Co., of Middletown, Ohio, has purchased one 5-retort, 17-tuyere Taylor stoker for use in their boiler plant at Middletown. This is in addition to a

Progress in Paper Making

WITH progress in American paper making, we are concerned and connected. To commemorate the advances that have been made, the more important annals of the industry will be recalled from month to month in this space.

The Invention of the Dryer

The earliest paper machines had no dryers. The paper coming from the presses was wound directly on a reel. When a thickness of four or five inches had accumulated on the drum, it was cut off by a large knife or saw blade and taken to a loft to dry.

In 1821, T. B. Crompton, an Englishman, obtained a patent for drying paper by means of a cloth which held the web against heated cylinders. The primitive dryer was heated by a stove hung within it and fired with wood. Inconvenient and clumsy as was this primitive dryer, it led the way to a great increase in the economy and productivity of paper machines.

Established 1842

Cheney Bigelow Wire Works

Experienced and Progressive

Fourdrinier and Cylinder Wires
Dandy Rolls and Cylinder Moulds
made and recovered

SPRINGFIELD, MASSACHUSETTS

Pickles' Patent Automatic Steam Regulator FOR Paper Making Machines

Which absolutely control the drying of the sheet. Installed on sixty days' trial

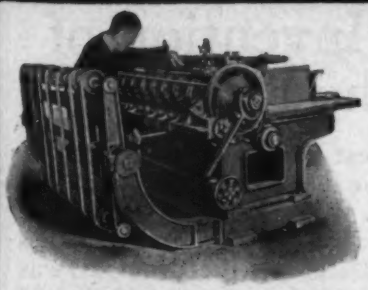
W. F. PICKLES Buckland, Conn.

FAWCUS Herringbone Gear Reductions

They increase production, save labor and decrease wastage on Calenders. Write for literature. Special Machinery—Couplings—Gears.

FAWCUS MACHINE CO., Pittsburgh, Pa.
2819 Smallman St.

THE JOHNSON FRICTION CLUTCH

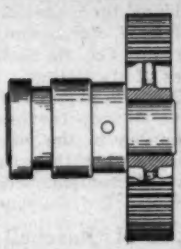


Courtesy The Samuel M. Langston Co., Camden, N. J.

On the Langston Rotary Slitter Creaser and Slotter

On this paper machine a Johnson Single Friction Clutch on the cutter shafts speeds up the registering of the slotting heads and feed. This is the FOURTH type of Langston machine to be equipped with Johnson Clutches. Johnsons are used in paper plants throughout America, and in foreign plants as far distant as Siam. Compact, strong, dependable, long-life clutches. Equip with Johnsons. Full data free. Write us.

Write for Catalog P. I.



Single clutch with spur gear

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

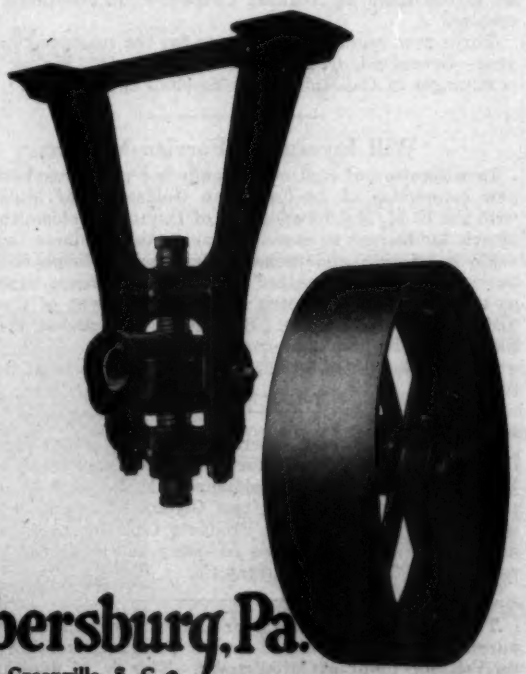
POWER TRANSMITTING MACHINERY

When you buy Pulleys and Hangers you do so with the idea of having them work for you

That being the case, why not buy those articles that WILL do the work you want done; that are designed and made for it; that will retain their original shape and not bend, twist or work apart. Pulleys that will keep on working day in and day out; hangers that will be as good in 1975 as they are today.

CAST IRON PULLEYS AND HANGERS have all these qualities. They will do the work, provided they are properly made.

We have been making these articles together with all other appliances for the Mechanical Transmission of Power since 1857, and that experience and the reputation we have built up guarantee to you a satisfaction unequalled in the field.



Special Machinery Built to Order

T. B. Wood's Sons Co., Chambersburg, Pa.

New England Branch, Cambridge, Mass. Southern Office, Greenville, S. C.

number of Taylor stokers already installed in this plant. These stokers are manufactured by the American Engineering Co., of Philadelphia.

Intervening Petition Filed Against A. W. P. Company Mills

In the suit of Michael P. Murphy New York City, against the American Writing Paper Co., of which the plants at Franklin and Excello, O., are branches, an intervening petition has been filed in the United States District court at Cincinnati, by the Old Colony Trust Co., of Boston, Mass., through its vice president, Chester B. Humphrey.

The petition asks permission to begin and prosecute a suit for foreclosure of a mortgage of $12,000,000 on the paper mills of the company, including the Franklin and Excello mills as a protection for the bondholders. The foreclosure suit is ancillary to a similar suit filed in the United States District court of Massachusetts at Boston, the petition states.

New England News

Boston Paper Trade Association

April 1, 1925.

One of the most successful meetings ever held by the Boston Paper Trade Association occurred on Wednesday evening, March 18, at the Algonquin Club, Boston. Guests and speakers of the evening included Major C. E. Russell, chief of the Army Secret Service in France during the War, and Lieut. Leigh Wade, pilot of the airplane Boston on the memorable flight around the world.

About 140 members and guests attended, taxing the capacity of the Algonquin club rooms. It was a dinner not soon to be forgotten. An unusually fine orchestra was provided and the club outdid itself in providing good things to eat.

A very brief business meeting was held with the slate of officers reported by the nominating committee unanimously accepted as proposed. The officers for the ensuing year will therefore be: William B. Stevenson, of A. Storrs & Bement Co., president; Norman Harrower, first vice president; Joseph D. Snell, second vice president; Thomas H. Casey, treasurer; F. Bendil Tracy, secretary. Applications for membership were received from Donald P. Weston, of the Esleeck Manufacturing Co., and Le Roy L. Gardner, of the R. L. Green Paper Co., both applications being unanimously accepted. President Stevenson, of the Boston Association, introduced William F. McQuillen, president of the National Paper Trade Association. Mr. McQuillen delivered a short address urging attendance at the New York meetings and extolling the work of the National organization.

Four members of the organization passed away during the past year, and at a suggestion from the chair, a silent toast was drunk in memory of George W. Wheelwright, L. H. Buckley, N. M. Jones and Thomas Cook.

Lieut. Wade spoke first, illustrating his talk with a series of four motion picture reels showing interesting points visited in the course of the flight. Lieut. Wade spoke entertainingly of humorous incidents that occurred during the flight. He made an excellent appearance with his modest manners, showing not the slightest touch of being puffed up as a result of the praise which he has shared with his comrades.

Major. C. E. Russell gave an impressive talk on the Secret Service. He prefaced his remarks with a discussion of the lamentable weakness of the American secret service at home and abroad, instancing the entire lack of representatives in European countries at the present time and the pitiful allowances in money and personnel for the service in the largest American cities, such as two men and $500 for New York City.

He then launched into a fascinating discussion of incidents where the American service contributed so ably to the success of the cause during the World War.

Both speakers were vociferously applauded, and it is doubted if a single man left his seat until the conclusion of the second address.

Among leaders of the paper manufacturing industry present were: W. E. Pratt, president of Hollingsworth & Whitney Co.; M. L. Madden, vice president and W. A. Merrill, sales

Cleveland
WORM GEAR
REDUCTION UNITS

THE BETTER SPEED REDUCER

built as a result of pioneering experience in the field of Worm Gear Speed Reduction.

This experience, extending over a period of more than twelve years, has resulted in an accumulation of vital facts covering the Speed Reduction problems of practically every basic industry in the Country.

This information is available to you through a trained engineering organization, which will be glad to consult with you at any time. There is a Cleveland representative close to you who will be pleased to call upon request.

The Cleveland Worm & Gear Co.
"America's Pioneers in Worm Gearing"
E. 80th St., Cleveland, Ohio

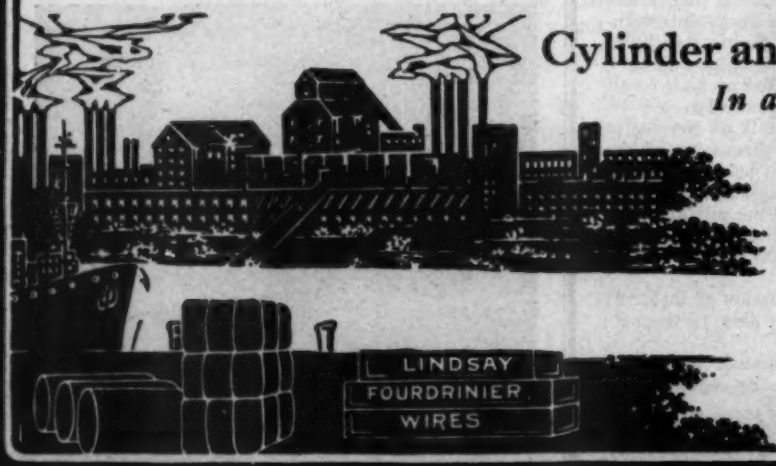
Paper Machine (Sectional Drive)—Motors—25 to 50 H. P., 275 to 725 R. P. M., Reductions 8 1/5 to 1.
Note the economy in floor space required due to the right-angle drive, distinctly a Cleveland feature.

Fitchburg Duck Mills
ESTABLISHED 1844
84 Duck Mill Road
FITCHBURG, MASS.
MANUFACTURERS OF
STANDARD AND MULTIPLE PLY
DRYER FELTS
English Weave in Two, Three, Four, Five and Six Ply—60 Inches to 176 Inches in Width
Fine Faced Felts for Fine Papers. Absolutely no felt marks in paper. TRIUNE Three Ply Felts for Coarse Papers.

DETEX
WATCHCLOCK CORPORATION
SUCCESSOR
Eco Clock Company
Hardinge Patents
Newman Clock Company
PATROL—ALERT—NEWMAN
and ECO Watchclock Systems
Boston New York
4140 Ravenswood Avenue, Chicago, Illinois

THE WATERBURY FELT CO.
SKANEATELES FALLS
New York
FELTS and JACKETS
Top and Bottom Wet Felts for board machines, with all the qualities requisite to insure long life and continuous production.
They Satisfy

LINDSAY WIRES
are
DURABLE AND DEPENDABLE
Made in all sizes



Cylinder and Washer Wires
In all Meshes
The Lindsay Wire Weaving Company
Collinwood Sta. Cleveland, Ohio

manager of the same company; S. W. Webb, president of the Eastern Manufacturing Co., and S. B. Copeland, vice president; Col. B. A. Franklin, of the Strathmore Paper Co.; Fred W. Main, of the Worthy Paper Co.; Walter E. Perry, Chemical Paper Mfg. Co.; W. J. Raybold, of the B. D. Rising Paper Co.

Cessations in Board Manufacture

As March closed, one of the larger board mills of New England gave up the struggle against great odds, the odds being mainly general overproduction of board, and went into receivership. It was the Uncas Paper Board Co., of Norwich, Conn., the old reorganized Ironsides Board Corporation, understood to be a losing venture for all its owners in the past decade. The maximum information available at this time is that Frank W. Browning, formerly active in the management of the company, has been appointed temporary receiver and that the H. G. Craig & Co. are assignees. The action was taken in the Superior Court at Norwich, Conn., Judge Brown requiring a bond of $25,000 for the receiver which was furnished. Many paper stock dealers are creditors, the largest being a New York packer for over $12,000, while several Boston shippers are also involved.

Another factor that came as a shock to many was the closing of the Cobossee mill of the Hollingsworth & Whitney Co., at Gardiner, Me. Ordinarily a closing would not be so disturbing but the mill in question had a record of 40 years' uninterrupted operations.

The Haverhill mill, of the Robert Gair Co., one of the largest board manufacturers in the East, has also been showing a very unsatisfactory stretch of operations, being down for a week in March, operating but two days another week, and five days another.

No further development is reported in the case of the American Writing Paper Co.; plans for reorganization are still under consideration. The company's immediate pressing difficulty is the payment of taxes to the city of Holyoke, which are owed in amounts totaling over $400,000, including personal and real taxes accrued. A special committee of the Holyoke Chamber of Commerce investigated the situation recently, conferred with S. L. Willson, president and receiver of the company, and has reported back to the Chamber. The recent action in the federal courts at Cincinnati was nothing more than a legal technicality to insure jurisdiction for the receiver for the American Writing Paper Co. mills located in Ohio.

Unique and Attractive Advertising Ideas

Some of the most unusual advertising ever done by a paper mill direct has come to hand from Tileston Hollingsworth Co., of Boston, in a sales campaign conducted on TIHO Bond. A sheet of the paper printed, folded and colored with coupons attached to exactly resemble a corporation mortgage bond was sent to the trade. It is called an all-year, high interest bearing bond, guaranteed by the Tileston Hollingsworth Co. The make-up is perfect for the purpose and each "coupon" contains a selling point on the paper.

Another excellent method of reaching the ears of consumers was adopted by the Worthy Paper Co., of Mittineague, Mass., on their new book paper "Dacian." A large, tastefully printed brochure was sent to the trade, presenting a graphic group of typographic specimens of merit, with text matter carrying suggestions to printing and publishing interests. This paper is the latest offering of the Worthy Paper Co., a mill whose workers regard their product as contributing to the movement for better printing and better books.

Henry B. Pearson, Maine state entomologist, reports that 40 per cent of Maine's spruce and fire forests have been destroyed since 1910 by the spruce budworm. This would equal twenty million cords of wood and far more timber than has been destroyed by fire during the same period. Dr. Pearson states that the worst damage has been done in stands containing a high percentage of balsam fir. Preventive work is now being carried forward energetically. Owners of in-

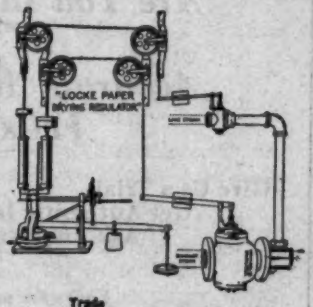
Lift Electrically

Why pull, tug, strain and waste your time with slow lifting methods, when the ROEPER TYPE "R" Electric Hoist will do the work twenty times as fast. The price is surprisingly low. Send for Bulletin.

Roeper Crane & Hoist Works, Inc.
1724 N. 10th St., Reading, Pa.

LOCKE Paper Drying Regulator

This regulator controls both live and exhaust steam for any purpose where steam is used, or it will control the direct steam when used alone. In unlike, both in construction and operation, any device that has heretofore been designed for this purpose. Controls not only temperature of the dryers when paper is running over them, but maintains the same temperature whenever there is a break in the paper. This machine is most sensitive to any change in temperature of dryers, yet it has been found to be perfectly reliable and what is more, is not continually getting out of order.



Trade LOCKE Mark Reg. U. S. Pat. Off.

Locke Regulator Co., 700 North St., Salem, Mass.
"Locke" Regulator Agency, 39 Cortlandt Street, N. Y. C.

1864 1925

"Excelsior" Felts

For EVERY GRADE of PULP & PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made *the first endless paper machine felts manufactured in America.*

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
CAMDEN, MAINE

Sold by
BULKLEY, DUNTON & COMPANY
75-77 Duane Street, N. Y.
and direct

LOCKPORT Felts

EXCLUSIVE MAKERS OF

Paper Makers' Felts

Have You Run Them?
If Not, Why Not?

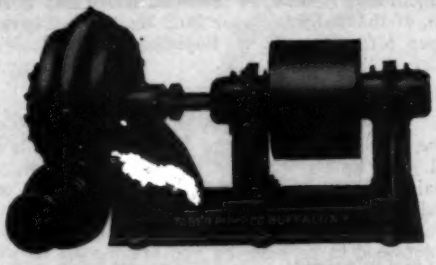
Are You Interested in Accurate Running Felts?

Give Us a Trial
Get Authentic Information
Ask the Men Who Run Them

Yours for service

LOCKPORT FELT CO., Newfane, N. Y.

Another Massive TABER CENTRIFUGAL PUMP



TABER PUMP CO. Buffalo, N. Y.
"Pump Specialists"
Builders of Centrifugal and Rotary Pumps

PUMPS

INDUSTRIAL—AGRICULTURAL—MUNICIPAL—RESIDENTIAL

A Type for Every Service

THE GOULDS MANUFACTURING COMPANY
SENECA FALLS, N. Y.

GOULDS

BARRE GRANITE IN PRESS ROLLS

Is Revolutionizing the Whole Paper Making Industry

If your Paper Machines are not equipped with Press Rolls of BARRE GRANITE you are not getting the results that you should get, for it is a recognized fact that granite rolls are much superior to any others and Barre Granite the best of all. Let us tell you about them.

Jones Brothers Company

BARRE, VT. **BOSTON, MASS.**

fested stands are notified by the state and required to immediately girdle their trees or start pulping operations. This system is the only effective one, inasmuch as it prevents spread and effectually kills it off in the locality infested.

Will Take Over Defunct Atlantic Corporation

The Georgia Pulp Co., of Boston, has been incorporated under Massachusetts laws to carry on a business in the state of Georgia. The company is formed through Boston parties who are thought to be representing local bankers including Lee Higginson Co., who hold notes of the defunct Atlantic Paper & Pulp Corporation, of Savannah, Georgia. The latter company has been purchased by the Georgia Pulp Co., and there is every reason to believe that the Georgia Pulp Co. will reorganize and operate the property, which it has acquired through assumption of $195,000 indebtedness and payment of $28,000.

The incorporators include Edward H. Osgood, president; Thomas Gorham, 44 State street, Boston, treasurer, and Frank D. Comerford, the third incorporator.

Definite assurance is received from the Fraser Companies, Ltd., that the paper mill in St. Agatha, Me., which they propose to construct will be started immediately upon receipt of assurance from Canadian and American officials that no objection will be raised to the steel pipe lines to conduct the pulp from the company's pulp mill in Canada.

A stock dividend of 100 per cent will be distributed to the shareholders of St. Croix Paper Co. as a result of agreement reached at a recent meeting in Boston. It has been earning substantially in excess of its dividend requirements owing to capacity operations of its big mill at Woodland, near Calais, Me. Earnings from the sale of newsprint in 1924 are said to have been close to 22 per cent on the company's $1,500,000 capitalization.

Assurance is received that the International Paper Co. will not close its mills in Maine. Recent reports that the I. P. Co. had decided to remove these plants to New Brunswick are declared to be without foundation by President Graustein on a recent visit to the company's plants in the Pine Tree State.

The Eastern Manufacturing Co. will shortly install a system of powdered coal burning at its Lincoln, Me., plant. The company is burning oil at present both at Lincoln and at the plant in Brewer. It is understood that the Brewer power house will later revert to coal, but nothing definite has been planned along those lines at present. The coal consumption at Lincoln is estimated at 40,000 tons annually.

To care for the growing coal needs of northern Maine paper mills, a coal storage plant is being projected at Bangor, Me., by Boston and New York interests. Boats can reach Bangor through the season of open water, but for four to five months of the year the Penobscot is closed to navigation by ice.

Some 250,000 tons of coal will be burned in mills of the International Paper Co. throughout New England, if plants now under consideration of changing several of their New England mills from oil to coal are pushed through.

Construction of a new warehouse for the Oxford Paper Co., at Rumford, Me., will start in the near future. It will be 182 by 35 feet and will house finished paper both of Oxford and of the Maine Coated Paper Co. The Oxford Paper Co. does a tremendous carload business and the warehouse will be equipped with traveling cranes to handle paper expeditiously from the mill to warehouse and into cars.

Zachary T. Hollingsworth

The oldest living member of the famous Hollingsworth family which has played such an important role in the New England paper manufacturing industry, Zachary T. Hollingsworth, chairman of the board of Hollingsworth & Vose Co., of Boston, died recently. Mr. Hollingsworth was born in 1848,

The wasp first suggested wood pulp!

TWO centuries ago, Reamur, a Frenchman, observing a wasp build its nest by chewing bits of wood to a pulp, conceived the idea that paper might be made of the same material.

Later, a man named Keller made experiments which introduced wood pulp as a basis for paper.

Wood pulp, however, owes a great deal to the Fourdrinier brothers, who introduced the continuous process and the Fourdrinier Wires. Without Fourdrinier Wires, the paper industry could not have reached its present proportions. Hundreds of millions of dollars' worth of wood pulp travels over Fourdrinier Wires every year to satisfy the world's demand for paper.

The W. S. Tyler Company has contributed its years of experience to the improvement of Fourdrinier Wires. Today, the most dependable, smooth-running, accurate mesh wires—wires that run straight and true—are made in the Tyler plant.

The longer life, the improved quality of paper, and the increased efficiency of the Fourdrinier machine, make Tyler "Quality" Fourdrinier Wires a profitable investment.

Supplied in all widths up to and including 250 inches

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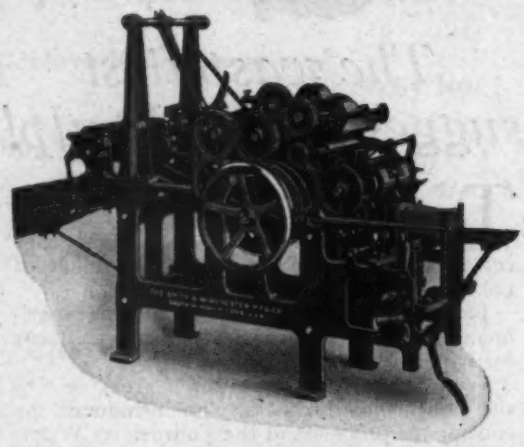
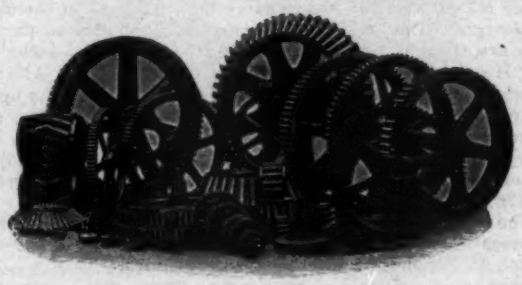


Paper Bag Making Machinery

MACHINE MOULDED
G E A R S



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We also make speed reduction gears and special machinery.

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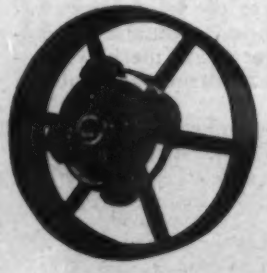

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Power Transmission Machinery
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BELT AND ROPE DRIVES
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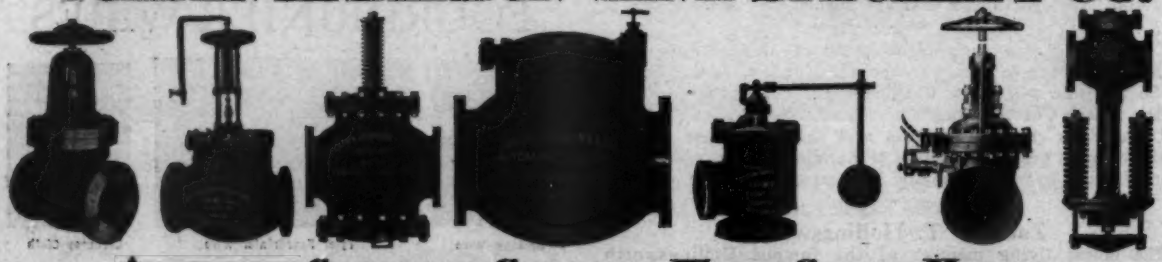


AUTOMATIC CUSHIONED STEAM AND WATER-SERVICE VALVES.
"We Challenge to Test for Merits Any Automatic Steam or Water-Service Valves in the World"
1240 FULTON BUILDING. PITTSBURGH, PA.

the son of Amor and Jane M. Hollingsworth. Branches of the Hollingsworth family have been prominent in the founding and development of such companies as Hollingsworth & Whitney Co., Tileston Hollingsworth Co., as well as the Hollingsworth & Vose Co. Mr. Hollingsworth entered the paper industry shortly after leaving school and established his first mill in East Walpole. In 1892, Mr. Charles Vose was taken into the business and the firm name changed to Hollingsworth & Vose Co. This company were one of the first manufacturers on a large scale of rope paper and are today the largest producers of this type of paper in the United States.

He was president of the company until recently, when he relinquished active management to his son Valentine Hollingsworth, who became president. His other son, Amor Hollingsworth, is president of the Penobscot Chemical Fibre Co., of Great Works, Me., and the Tileston Hollingsworth Co.

Mr. Hollingsworth had made his home in the Hotel Brunswick in recent years. Funeral services were held at the home of his son, Valentine, at 191 Marlboro street, Boston, on Saturday, April 4.

Charles W. Ramage

Charles W. Ramage, former treasurer of the Franklin Paper Co., of Holyoke, Mass., died recently after a long illness. He was born in Paterson, N. J., in 1865 and early entered the employ of his father's Franklin Paper Co. mill, in Holyoke. For some time, he was treasurer of the James Ramage Paper Co., of Munroe Bridge, Mass., returning later as treasurer of the Holyoke Co. He is survived by a daughter and son, three brothers and three sisters. One brother, James M. Ramage, is president of the Franklin Paper Co., and another, Robert A. Ramage, is secretary of the same company.

The paper industry recently showered congratulations on John S. McElwain, of Holyoke, an outstanding figure in the development of Holyoke's paper industry, on the occasion of his 97th birthday. Mr. McElwain was treasurer of the Parsons Paper Co., the Valley Paper Co. and organized the Nonotuck Paper Co. in 1879 and the Linden Paper Co. in 1892. These mills were later sold to the combine formed by the American Writing Paper Co.

Further announcement comes to hand from Holyoke stating the intervening petitions in the case of the Old Colony Trust Co. vs. the American Writing Paper Co. will be entered in Connecticut and Wisconsin, where the company has mills. These will follow the lines of the recent petitions entered by the bank in Ohio.

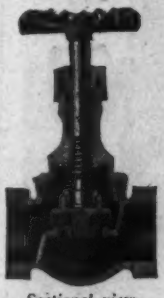
Fred A. Gilbert, vice president and general manager of the Great Northern Paper Co., and Mrs. Gilbert lost all their effects in the fire which destroyed the Breakers Hotel at Palm Beach, Fla., recently.

George M. Graves Co., of Boston, announce the severance of connection with them of Mr. Morris Reich, of New York, who had been their representative in the metropolis. No action looking towards another representative will be taken until the return of Mr. Graves from an extensive European business trip. Mr. Graves will return to Boston on the Caronia in the near future. The George M. Graves Co. are importers of paper-making materials, including woodpulp, rags, waste paper, ropes, etc.

The Mars Paper Corporation, of Westfield, Mass., tissue paper manufacturers, is understood to be negotiating for the installation of a 72-inch Fourdrinier to trim 62 inches. A Harper is at present under consideration.

Walter T. Clark recently resigned as manager of the paper mill supplies department of the Maurice O'Meara Co., of 448-450 Pearl street, New York, to become vice-president of Darmstadt, Scott & Courtney, among the oldest concerns in the metropolitan district dealing in papermakers' supplies, of 178-184 South street, New York. Alfred Bloch succeeds Mr. Clarke as manager of the O'Meara paper stock department.

Fig. 223, Jenkins Renewable Disc



Sectional view, Fig. 106, screwed, Jenkins Standard Bronze Globe Valve

Make sure you get Jenkins Discs

For the highest peak of performance, the right combination is a Jenkins disc in a Jenkins Valve. Should renewals be necessary, make sure to specify discs marked with the Jenkins "Diamond."

There are Jenkins discs for every service—steam, cold water, hot water, air, gas, oil. They are made of various rubber compositions, although for special uses metal discs are supplied.

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Always marked with the "Diamond"
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THESE days when the market is dull, one way to increase profits is to improve manufacturing methods. Your biggest chance to clip costs is to save on steam. Wherever a machine is using more steam than its absolute minimum requirement, there's steam going to waste.

Put a Davis Regulator there; the annual savings brought by such efficient methods is enormous. Ask for the free catalog, explaining why you can install this steam saver and then forget it. Address the G. M. Davis Regulator Co., at 414 Milwaukee Ave., Chicago.

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STEAM SAVERS SINCE 1875

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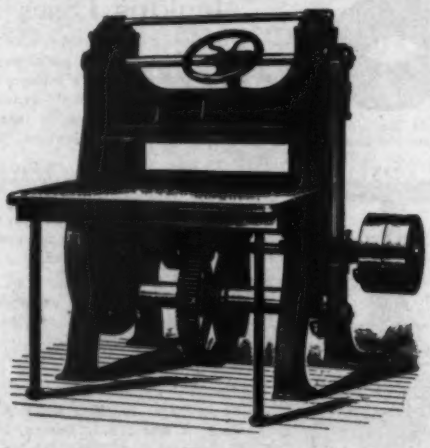

Cuts envelopes and paper forms of any kind. Works equally well on cardboard, leather, rubber, etc. A powerful quantity production press. Standard equipment among many large manufacturers.
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"SHEAR CUT"
for All Classes of Roll Products *for*
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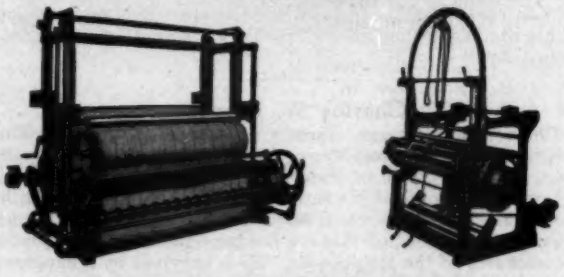

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Pacific Coast News

April 1, 1925.

Crown Willamette Buy Leadbetter Camas Property and Rights

The Crown Willamette Paper Co. who have one of their mills at Camas, Washington, have purchased all of the Fred W. Leadbetter and Pittock estate interests in Camas and that vicinity. The deal which was made on March 20 runs into about $500,000.00.

The Crown people get all of the shoreland and property west of the city of Camas.

All of the unsold platted and unplatted property, within the city of Camas and adjacent thereto.

All of Lady's Island.

All of the land of Lacamas lake, which is the reservoir for the water supply for the paper mills.

All of the riparian rights of the La Camas Water Power Company.

This is one of the most significant transactions made in Camas in a long time, and will enable the Crown Willamette Co. to go on unhampered with many developments.

Mr. Fred W. Leadbetter reserved his summer home on the shore of Lake La Camas, also the Pittock residence on the lake. All other property in and about Camas owned by the Leadbetter and Pittock interests are now the property of the Crown Willamette Company.

This acquisition of the above property undoubtedly means that the new kraft pulp mill which was to have been built at Vancouver, Wash., by the Crown people will now be built on this newly acquired property.

A saw mill will be a part of the new kraft mill, the slabs from the saw mill to furnish the wood for the pulp as well as fuel for steam for process and other work.

It is understood that after the kraft mill is put into operation that the Crown Willamette will erect a bag factory alongside of the present plant, which is one of the largest paper mills in the Northwest.

The sale of the Leadbetter property at Camas will prevent the erection of the new Leadbetter Lumber and Paper Co. new tissue toilet factory which was to have been built at Camas. However, it is understood that a new site for the project has been located, this one having many more advantages than the one just disposed of.

The new saw mill and kraft mill at Camas will give employment to about 175 to 200 men, and will be a big help to that city.

Stamp River Water Power Plans Progressing

Dispatches from Victoria, B. C., state that surveys in connection with development of water power at the Stamp River Falls, are still in progress, and according to Newton J. Ker, land commissioner of the Esquimalt and Nanaimo Railway, a subsidiary of the Canadian Pacific, the proposed pulp plant on the Alberni canal is still an active project. Promoters of the pulp plant have until December to complete their survey, but it is expected that an application to the government for approval will be made before then.

In connection with the big scheme, it is proposed to construct a hydro-electric plant at the falls, and it is with an idea of obtaining knowledge of the water power available that the surveys are being made. It is understood that the promoters are prepared to spend about $1,000,000 on the big project, which will also include the transmission of power from the hydro-electric plant to the pulp mill on the Alberni canal.

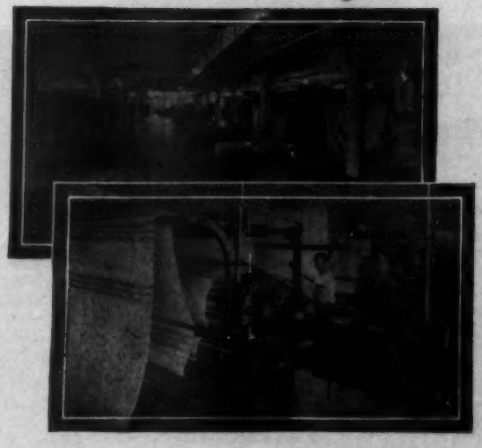
The Business Outlook from Seattle

The Journal of Commerce, Seattle, under date of March 10, said:

"The paper box trade of Seattle is in about the same condition as at this time last year. The business volume of the first two months of the present year is calculated to be about five per cent less than in January and February of 1924, leaders in the trade report.

"The range of prices on various stock shows no appreciable

Here's a Worthwhile Saving~



2500 Sq.ft. Floor space saved

THE North Star Woolen Mills in Minneapolis, by installing IXL Speed Reducers for driving their napping machines shown above, not only released 2500 sq. ft. of valuable floor space for other purposes, but reduced power losses, accident hazards and increased operating efficiency.

Let us show you how IXL Speed Reducers will effect these same savings in your plant.

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Please send without obligation a copy of the Foote IXL Speed Reducer Book.

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A Great Success

Our patent vertical dryers installed on a Fourdrinier machine making cover papers.

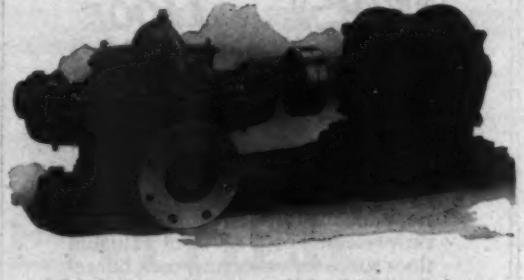
No felts used on them.

Steam pressure reduced from 15 pounds to less than 5 pounds.

No cockling of the paper.

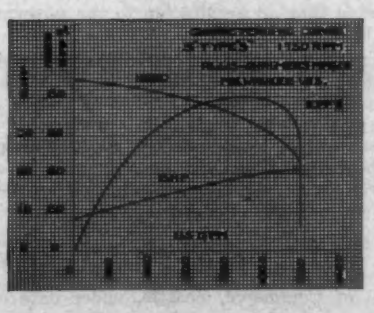
Sheet threaded by Sheehan patent carrier system.

Increased production and better paper.



Good Centrifugal Pumps *for* Real Economy

Much pumping work is done against low and moderate heads and for these conditions cheaply built inefficient pumps are frequently used. This certainly is not economical when the improved Allis-Chalmers type "S" pumps having every desirable feature can be bought at a relatively low price and will use much less current and smaller motors. A few quotations from us on your requirements will prove these statements.



ALLIS-CHALMERS MANUFACTURING CO.

MILWAUKEE, WIS. U.S.A.

change from a year ago. There was a slight decline, however, after the first of the present year in manila lines.

"The trade is optimistic over the spring months and is preparing for a larger general business volume in 1925 than in 1924. Production totals will be equal, if not greater than last year, it is stated.

"Allied lines in the paper trade show steady prices with the market quiet but firm. Cotton, jute, and hemp cords are steady. The average price level of the better grades of bonds is higher; the advance occurring near the first of the year. Newsprint remains the same as last year."

Cascade Company Planning to Build Pulp Mill

To supply all of the pulp used in its paper mill, the Cascade Paper Company, of West Tacoma, Wash., will build a $400,000 pulp mill adjoining its present paper plant at the mouth of Chambers creek, near Steilacoom. The new pulp mill will make possible an increase in the paper output of more than one third, and will increase the annual payroll from $94,000 to more than $124,000 and will increase the use of waste mill wood by sixty-five cords a day. It will raise the daily consumption for pulp making and fuel purposes to 100 cords a day.

Of the $400,000 which is to be spent, $60,000 will be used to erect buildings to house the wood chipping plant, the rotary incinerator, the lime recovery kiln, a new machine shop, a new boiler room, a new office, a new finishing room, and an extension on the dock. The balance will go for machinery used in making high grade pulp.

Inland Empire Reconstructing Mill Unit

Contract for complete reconstruction and partial equipment of a mill unit of the Inland Empire Paper Company plant at Millwood, near Spokane, a two-story building, 145 by 255 feet, has been awarded to the Austin Company of Cleveland. The contract calls for the completion of the new unit in ninety working days.

The present building will be torn down and the new unit erected on the same site, according to Waldo Rosebush, treasurer of the company. The plans call for a building of steel frame and reinforced concrete material; about 125 tons of steel will be used in the frame. The building will house paper machines and equipment, a large part of which will be new.

The inland Empire Paper Company plant at the present time is valued at $3,000,000. From ninety to 100 tons of finished product, a large part of it newsprint, is turned out daily by 300 employees. The plant runs three shifts a day, with some departments working Sundays.

Announcement at Port Angeles, Wash., has been made that A. J. Tickner, former engineer of the U. S. Spruce Corporation in Clallam county, would open a pulpwood camp in a part of the Solduc timber belt and ship cordwood to Port Angeles over the Lyons and Hill and Milwaukee railroads.

Application for one second foot of water from Bybee creek a tributary of the Columbia, for water supply of the new town of Alderwood in Cowlitz county, has been made by the Lewis River Pulp and Paper Company. A pipe line one and a half miles long will be constructed, at a cost of about $10,000.

The Powell River Mills, at Powell River, B. C., has let a contract for $102,000 to cover supply and installation of additional penstock leading from the dam to the new grinding building. The Horton Steel company of Bridgeburg, Ontario, was the successful bidder.

Industrial Works Shifts Personnel

Lyle Marshall, former manager of the service department of the Industrial Works, Bay City, Mich., and later connected with the Chicago office of that company, has recently been appointed district sales manager, with new offices at 619 Dixie Terminal Building, Cincinnati, Ohio.

James E. Shearer, assistant sales manager of the Industrial Works, Bay City, Mich., has moved his headquarters from the home office to the Industrial Works' New York office, 50 Church street, that city. George T. Sinks, in charge of the New York district, will remain in that position.

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BALL BEARINGS

for
Greater Capacity

COMPARE Gurney Ball Bearings—Maximum Service—Maximum Capacity type—with like sizes of other bearings. Note the greater number of maximum size balls per bearing. The race curvature is such that they have increased areas of contact.

These are the secrets of their ability to safely carry greater loads than other bearings of equal size. This is done without affecting the life of the bearing or its efficiency.

Gurney load capacity ratings are considerably higher than are the ratings for bearings of other types—and you will find Gurneys performing unfailingly in any number of machines where this additional capacity is essential to the successful performance of the machines.

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Marlin-Rockwell Corp.
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JAMESTOWN, N. Y.

Swenson Triple-Effect Evaporator for Handling Black Liquor, Mead Pulp & Paper Co., Chillicothe, Ohio.

Send for Pulp Mill Circular No. P-123.

Swenson Reclaiming Machinery *for Soda and Sulphate Mills*

Our Experiment Station at Ann Arbor

is equipped to make tests, on a commercial scale (under the direction of Prof. W. L. Badger) on problems involving evaporation, crystallization, heat transfer, etc., at a moderate charge.

SWENSON EVAPORATOR CO.

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Main Office and Works: Harvey, Ill., (Chicago Suburb)

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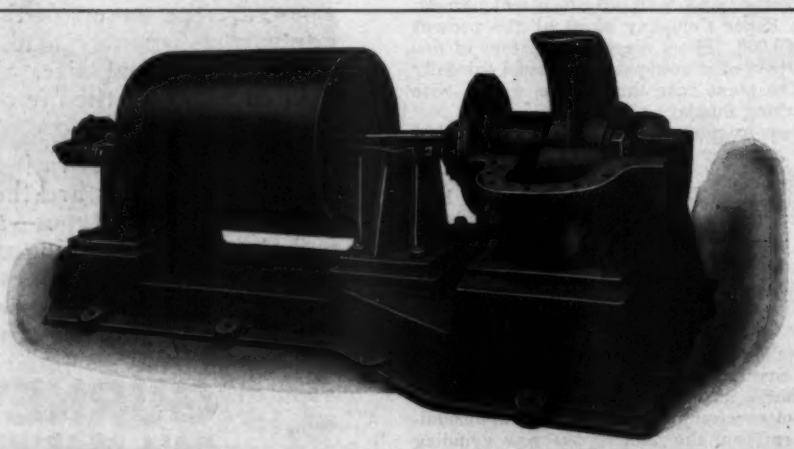

for handling STRINGY Stock, Cross Pumps are efficient and dependable

E. M. CROSS MACHINE CO., Berlin, N. H.

New York City News

New York, April 1, 1925.

E. L. Frankel Heads Waste Dealers' Association

Egmont L. Frankel, of Frankel Bros., Ltd., Toronto and Montreal, Canada, was elected president of the National Association of Waste Material Dealers, Inc., whose membership includes practically all of the large concerns dealing in and importing paper manufacturers' supplies in the United States and Canada, at the annual meeting of that organization in the Hotel Astor, New York, on March 18.

Mr. Frankel succeeds Harry R. DeGroat, of Philadelphia, who retired after serving two terms as president. Henry Lissberger, of New York, was elected first vice-president; G. H. Rady, of the E. J. Keller Company, Inc., New York, second vice-president, and E. B. Friedlander, of Chicago, third vice-president.

Among the directors of the association elected were the following prominent members of the papermaking supplies trade: Frank C. Overton, of Castle & Overton, Inc., New York; George M. Graves, of the George M. Graves Company, Boston; E. H. Silberman, of the S. Silberman Company, Cleveland; Mark B. Speer, of M. B. Speer & Co., Pittsburgh; Alfred J. Moran, of A. J. Moran & Co., New York; Albert T. Hicks, of Daniel M. Hicks, Inc., New York; Morris Gintzler, of J. Anderson & Co., New York, and Stuart B. Sutphin, of the Sutphin Company, Cincinnati. G. H. Rady was re-elected chairman of the Paper Stock Division of the association; Albert T. Hicks was re-elected chairman of the Waste Paper Division, and Jesse Long, of S. Birkenstein & Sons, Inc., New York and Chicago, was re-elected chairman of the Foreign Trade Division.

The annual banquet of the association, given on the evening of March 18 in the Hotel Astor's ballroom, was attended by more than 400 members and guests. United States Senator Simeon D. Fess, of Ohio, was the principal speaker.

Receiver for Uncas Company

Frank W. Browning was appointed receiver in equity on March 16 for the Uncas Paperboard Company, manufacturer of paper-box boards, with mill at Norwich, Conn., and offices at 52 Vanderbilt avenue, New York. Mr. Browning's bond was $25,000.

It is not known as yet what the assets and liabilities of the company are, but the proceedings were instituted in equity for the protection of creditors following the filing of a petition by a group of creditors.

Changes in Diamond State Personnel

Due to the growth of business of the Diamond State Fibre Co., with offices in New York and other cities, several transfers of executives have been made. Among them is that of R. W. Knox, who has been made general manager, with offices in New York, succeeding L. K. Detwiler, who has gone to the mill in Bridgeport, Pa., as assistant general sales manager. I. R. Blair, formerly in charge of radio products at the Bridgeport plant, is now in charge of the Pittsburgh office, succeeding G. P. Singer, who has been switched to the New York office to assist Mr. Knox.

B. B. Richardson has become general manager of radio products. C. L. Simmons, formerly in charge of the Chicago branch, has been appointed to take charge of a new southern branch to cover the entire South. Franklin Dunlap has resigned as advertising manager to become general manager of the Beaver Soap Co., in Dayton, O.

Calvin C. Woolworth

Calvin C. Woolworth, one of the last of the pioneer developers of the West, a builder of railroads and a banker of Colorado before the Civil War, and president of the Fort Orange Paper Co., died on March 9, at the age of 91, in the home of his daughter and son-in-law, Mr. and Mrs. Ralph H. Warren, at 40 West Fifty-ninth street, New York. Although the earlier years of his long business career were spent in the West, chiefly in Colorado and Kansas, Mr. Woolworth came from an old New York family, and he spent the latter half of his life in New York as a paper manufacturer. Settling in

A Better Belting
Than Rubber
It Pulls Better
It Lasts Longer

Tannate Leather Belt

As to the pull—tests in our well appointed laboratory show that Tannate Leather Belt transmits 100% more overload than rubber belts. This is a big claim, but the experience of many users goes to confirm it.

Still better—we would like you to visit our laboratory at the factory and let our engineers show you how we test the transmission power of belts. It's as good watching as a race.

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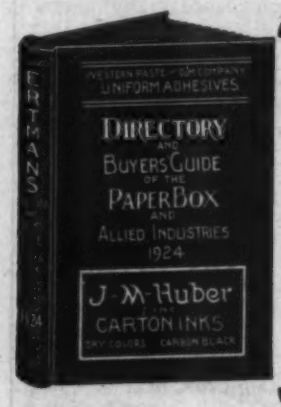

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Makes Your Truck or Tractor a Pumping Plant

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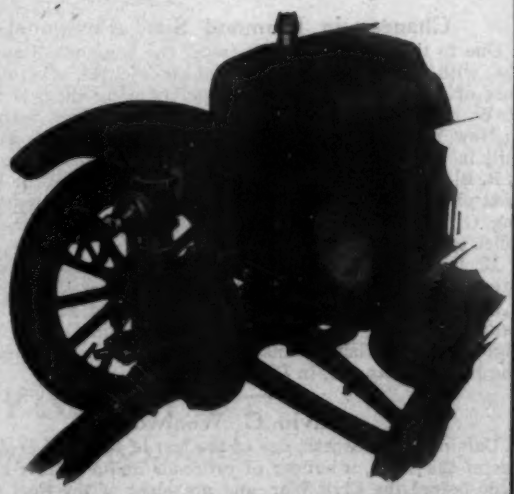

View Showing Pump Attached to Ford Car—Type B-1

Ask for Bulletin No. 56P

AMERICAN STEAM PUMP CO., Battle Creek, Mich.

that city after the war, he became the owner of large paper mill interests as a partner in the firm of Woolworth & Graham, and later became president of the Fort Orange Paper Co.

Jesse L. McEwan

Jesse L. McEwan, vice-president and general manager of McEwan Bros., Inc., manufacturers of paper boxboards in Whippany, N. J., died at his home in that town March 4. He was 50 years of age. Mr. McEwan was interested in various enterprises in Whippany, being general manager of the Hanover Brick Co. and vice-president of the Morristown & Erie Railroad.

Fred D. Duerr

Fred D. Duerr, general manager of the export division of the Union Card and Paper Co., of 45 Beekman street, New York, died on February 11 after a prolonged illness. He was 39 years old, and is survived by a widow, a son and a daughter. Mr. Duerr traveled extensively in the West Indies and South America, and in his earlier days was Bolivian representative for W. R. Grace & Co. He had been in the paper trade since he was 16 years of age.

The seventh annual convention of the National Lime Association and the twenty-third annual meeting of Lime Manufacturers will take place on May 26 to 29, inclusive, at Briarcliff Lodge, Briarcliff Manor, Westchester County, N. Y.

The Mathieson Alkali Works, Inc., have moved their general offices to 250 Park avenue, New York City (at Forty-sixth street), which are larger and provide better facilities for the efficient handling of the company's expanding business.

Several changes in the personnel of the Erie City Iron Works, Erie, Pa., were made at the recent annual meeting of the board of directors.

The Vickers & Combustion Engineering, Ltd., Toronto, state that among the many orders recently received for installation of type "E" stokers, vapor separators, Kidwell boilers and semi-Diesel stationary engines, Price Brothers & Co., Ltd., have placed an order for one Ruths steam accumulator for their plant at Lake St. John, Quebec. The accumulator has a volume of 7500 cu. ft. and a capacity of 37,000 lbs. Two type "E" stokers, class 9, size 10 ft. 10 in. have also been ordered.

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But according to the enthusiastic testimonials of many of our satisfied customers, we have considerably less trouble lubricating beater bearings correctly than our competitors have. And we have evidence in our files showing that beater bearing temperatures have been reduced from 250°F. to 120°F. through the use of Tycol Medium Fibre Grease—the lubricant recommended by our Engineering Bureau for beater bearings, both open and enclosed.

One of our Staff Engineers will be glad to call and present this evidence to you, and tell you more about the Tide Water Power Group.

If your beater bearings are of the open type, he has a practical suggestion for lubricating them that will make his visit doubly worth your while.

The F[illegible]TION

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In their application to each phase of paper mill lubrication, the lubricants comprising the Tide Water Power Group form the "film of protection," *thin as tissue, smooth as silk, tough as steel.* The application of the Tide Water Power Group to your machinery will give you economical lubrication—maximum power, uninterrupted operation and increased production.

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Technical Developments in the Paper Industry

Domestic and Foreign

The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

Machine House Ventilation

THE subject of machine house ventilation is discussed in a paper which is published in part in The World's Paper Trade Review, 1924, page 966. In this paper the various formulas that apply to this matter are discussed, the amount of air required for drying is calculated and a theoretical equation is derived for the amount of heat that is necessary to perform the drying operations. It is stated that heat losses are hard to avoid, and it is recommended that the roof of the machine room should be insulated so that these losses are kept down to a minimum. A wood roof with a false asbestos roof within would do very well. If drips occur, these may be traced to air pockets which arise from inside beams and purlins, leakage air currents and glass windows in the roof. A hood helps to remove drips. On the other hand, it must be remembered that hoods possess disadvantages, among which may be mentioned the lack of accessibility around the machines and the shading of light from the machines. But when the hoods are properly designed, these disadvantages can be gotten rid of. The use of hoods certainly reduces the heat losses.

Beating and Refining Pulp

A BEATING and refining apparatus for making paper is patented in British Patent No. 216,974. This engine comprises a vertically arranged rotor which is longitudinally fixed and operates inside a shell or casing which is provided with one or more rings of metal, carborundum, hard stone, rubber, wood or other suitable table substance veined to cause fraying. The clearance between the rotor and rings is gradually reduced from the inlet to the outlet. The rotor is of cast iron, steel or bronze and is provided with knives which may have a slight spiral setting. The rings are mounted on lugs which rest on spiral ribs so that the casing may be adjusted to the rotor by the rotation of the rings. The treated material is delivered from the apparatus between a veined flange fixed to the rotor, and a veined ring, which is secured to the casing and adjustable to and from the flange. The shell and rotor may be hollow and may be cooled by attachment to a water supply. The kind of stock produced may be regulated by the speed of the rotor, the distance from the shell and the concentration of the stock, which later may be diluted with water admitted to the feed opening. In another arrangement the rotor is more acute in design, the rings are adjusted by worm or other gearing, and the flange and ring are dispensed with.

Investigation of Paper-Making Materials

A RECENT issue of the Bulletin of the Imperial Institute describes the results that were obtained in the examination of a number of potential paper-making raw materials.

One material that was examined was bamboo from Mauritius. The yield of this raw material per acre was 20 tons and it was found that a strong brown paper could be made from the pulp which it was possible to bleach to a cream color without any great difficulty. The bleached pulps furnished opaque papers of good strength and quality and would be suitable, it is claimed, for the manufacture of high grade papers. Another substance that was investigated was elephant grass from Sierra Leone. Pale brown pulps were obtained from this material and these pulps were found to bleach easily. Good, strong papers were made from this pulp, but these papers contain specks of undecomposed fibers.

Barley reed from Iraq did not yield so good a pulp, although the paper was fairly strong but brown-colored. The pulp did not bleach well. An interesting material was waste cotton bolls from Egypt. The material that was tested consisted of damaged and unripe cotton bolls together with broken husks and some loose cotton. The lint was in poor condition, a large part of it being moldy and immature. The sample was in poor condition, a large part of it being moldy and immature. The sample was composed of husk 34 per cent, seed 45 per cent, lint 20 per cent and one per cent of loose dirt and dust. The pulp that was obtained from the first tests made with this material was sufficiently disintegrated except for the presence of particles derived from the husk and stalk. The paper that was obtained was of good strength and of medium brown color, but there were many black specks throughout its texture and the web shrunk somewhat on drying. The pulp bleached with some difficulty and then furnished a cream-colored paper of good strength which showed only a few fine specks.

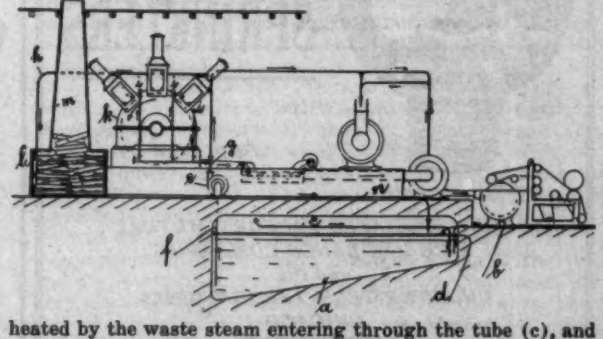
The conclusion that was derived from the above experiments was that the raw cotton material could be successfully made into a brown paper which is suitable for wrapping purposes, or after bleaching can be used for producing cream-colored paper of fair quality.

Hot Mechanical Wood Pulp

THE well known process which consists in the addition of hot water to the grindstone during the manufacture of mechanical wood pulp is improved according to British Patent No. 400,049 in that the wood which is to be ground is heated directly before the process and thus when it is ground the wood is hot. This results in two advantages, first, in that power is saved in grinding the wood, and then again a finer and stronger pulp is obtained.

The accompanying illustration shows how this process is carried out.

There is a box (a) under the grinder and the waste liquors are led into this box through the pipe (b). These liquors are



heated by the waste steam entering through the tube (c), and then again the pipe (d) leads the condensed water from the heating and drying cylinders into this tank. In order to clarify the water, it is advisable to add some wood chips to the box (a) and at the same time these chips are softened up by the water. A pump (e) is provided for removing the hot water from the box (a), through the pipe (f) and through (g) into the spraying device of the grinder which is shown at (i). Then the hot water is also pumped through the pipe (h) into the softening box (l) in which the stock which is going to be ground is kept.

The wood that is contained in the softening box (l) is not only heated but softened as well, and so that hot and fairly

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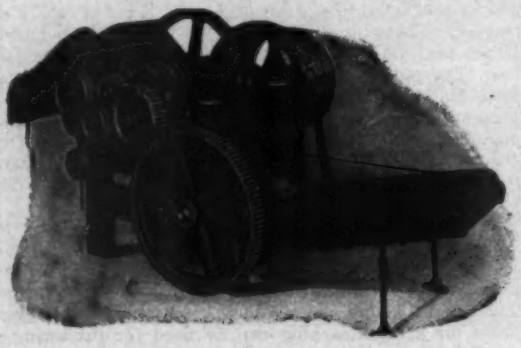
has a capacity of 100 pounds per minute with a consumption of approximately 7½ horse power. No other cutter can equal its efficiency based on output for power consumed.



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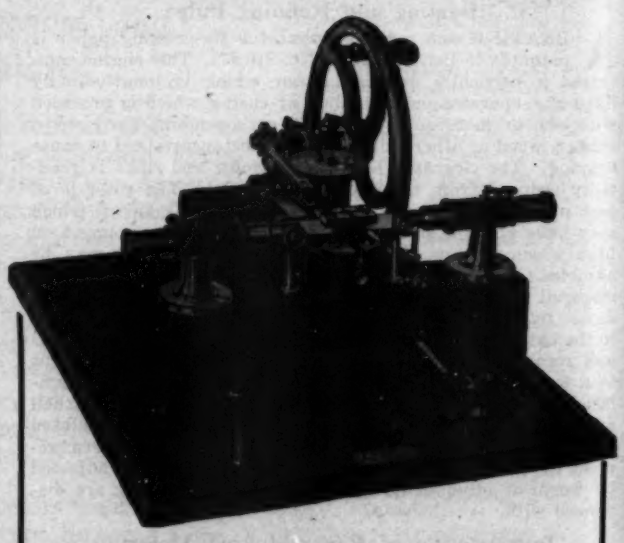

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well softened wood is fed to the grindstones. A constant change of water is taking place in the box (l) as hot water enters through the pipe (h) while the cold water runs off through the pipe (n). This cold water flows back again to the box (a). It is possible to control the temperature of the water in the box (a) in such a manner that the temperature will always be constant, the control apparatus acting on the valve on the cold water inlet line.

This process is suited for the preparation of wood not only for mechanical wood pulp manufacture but also for the manufacture of chemical pulp.

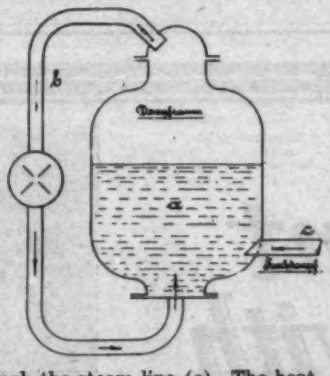
Reddening of Sulphite Cellulose

IN AN article which was published in the Svensk Papers Tidning, Numbers 21 and 22, a process of preventing the formation of the reddish coloration on sulphite cellulose is described which consists of treating the cellulose with sulphurous acid after the red coloration has developed. It has also been observed that when the sulphite pulp has been stored for so long a time that the maximum intensity of the color has developed, then there is no longer any appreciable formation of additional colored spots. The treatment of the sulphite pulp with sulphurous acid is carried out without the presence of salts. The time that is spent in the treatment is considerably reduced by conducting the operation at a high temperature.

Recovery of Sulphite Waste Gases

IN THE manufacture of sulphite pulp, when the digestion liquor is heated up, gases are evolved, which contain sulphur dioxide and which are ordinarily lost as far as the actual digestion process is concerned. Attempts have been made to return these gases to the digester.

In German Patent No. 407,962, there is described an apparatus for compressing these gases with the aid of a cylinder or centrifugal compressor, so that the resistance in the piping systems and in the column of the liquor in the digester is overcome, whereat the gases are made to flow into the digester, and in this manner better circulation of the digestion liquor is attained.



The apparatus used in this process is seen in the accompanying illustration.

The digester is shown at (a). Steam is made to enter the apparatus through the steam line (c). The heating of the liquor results in the liberation of a certain amount of the gases. These gases are not allowed to go to waste as heretofore, but are made to pass through the pipe (b) and are compressed in a compressor shown at (d). They thus attain such a pressure that they are forced up against the column of liquor in the digester (a) and are therefore rendered available to perform their digestion action on the stock.

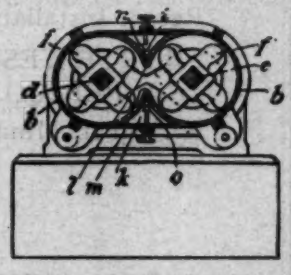
Pulp and Latex Products

VEGETABLE, animal or mineral fibrous material, together with mineral fillers, such as china clay, are treated, during or after the beating operation, with rubber latex in quantity to give, for example, from one to forty per cent of rubber on the resulting dried product. The rubber is then coagulated on the beaten fibers and the pulp drained, for example, by running it on a board-making machine. The resulting moist pulp sheet is disintegrated into small fleecy pieces and molded with or without the addition of other fibers, waste rubber, mineral fillers and the like. Sulphur in any suitable form may be added at any convenient point in the process, but is preferably added as alkali sulphide to the natural or preserved latex, so that the addition of an excess of a coagulating agent causes the formation of colloidal sulphur in intimate association with the coagulated rubber. From 1.2 to 2.4 ounces of sodium sulphide per gallon of latex (assumed to contain thirty per cent of rubber) is a convenient quantity to add. Accelerators may be used and should be of such nature that, if possible, vulcanization can be effected at a lower temperature than is usually employed. The product that is to be vulcanized may be exposed to a moist or dry heat. Latex, containing gutta percha or balata, may be employed instead of or in conjunction with rubber latex.

This process is patented in British Patent No. 210,193.

Paper Disintegrator

THE illustration shows a paper shredder or disintegrator in which the trough or well of the machine is provided with a heating device. The two shafts (d) and (e) are equipped in the usual manner with stirring or kneading paddles. While heretofore hot water only has been admitted with the paper that is to be disintegrated, the interspaces (i) and (k) between the two halves of the trough, are formed into chambers into which steam is admitted by which the trough is heated for its entire length. In order, however, to allow of the admission of steam or hot water to the paper stock at any desired point in the length of the trough, the steam chambers (i) and (k) have, at (I) and (m), apertures that can be closed, when desired, by means of the compression screw valves (n) and (o). The temperature in the machine can therefore be regulated within the widest ranges, and the use of power thereby effectively reduced. In place of the heating chambers or in addition to them, heating coils can be disposed in the trough, between the turns of which the beating paddles can work. World's Paper Trade Review, 1925, 826.



Pulp and Lignone Substances from Wood

THE wood is treated in the usual manner as if it were to be made into sulphite pulp by the bisulphite process and then it is brought into a digester which is provided with an acid-resisting lining and which is also able to withstand pressure. The aqueous solution of sulphurous acid is prepared by saturating water at ordinary temperatures with sulphur dioxide gas and at such pressures that a seven per cent solution is obtained. Barium sulphite is added to this solution for the purpose of precipitating the sulphuric acid that is always present in it. After the sulphate of barium has been allowed to settle to the bottom of the tank in which the precipitation is carried out, the sulphurous acid solution is pumped into the digester. About six times the weight of the wood added to the cooker is used as a measure of the amount of sulphite liquor to add. The cooker is then closed and is heated with direct steam which serves to keep the contents of the digester in constant circulation. After a period of six hours has elapsed the temperature of the steam is raised to 105 to 110 degrees C. and the treatment is allowed to continue for another ten hours. The excess of sulphur dioxide in the digester is blown and can be recovered by allowing it to dissolve in water to form additional sulphurous acid.

The contents of the cooker are then washed. The liquor and the wash waters contain the lignone bodies, which differ very markedly from those that are found in the waste liquors that are usually recovered in the manufacture of sulphite pulp. The liquor and the wash waters are then concentrated so that they are applicable for certain definite purposes, as for example in the tanning of leather. It has been found that the lignone bodies that are found in the liquor that is recovered from the sulphite cellulose process, as it is carried out in the above description, are particularly well suited for this purpose, more so than the liquor that is usually recovered from the sulphite process.

When the liquors or rather the lignone bodies are to be put out in concentrated form or in the state of a precipitate in order to render their handling and transportation more easy, then the sulphurous acid, which is contained in them, is first removed and the sulphuric acid which is formed in cer-

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tain amounts in the process is removed by precipitation with the aid of barium chloride. The filtrate can then be evaporated to the required concentration at low temperatures in a vacuum evaporator. When these liquors are evaporated to dryness there is obtained a product which represents the original lignone bodies in the wood, which are of course changed to a certain important extent through combination with the sulphur in the digestion liquors. This process is patented in German Patent No. 401,418.

Coloring the Surface of Paper

IN ORDER to color the surface of paper with water colors, one of the most important considerations is to select the right kind of binding agent; that is, the binding agent, whether it is glue, gelatine, casein or starch preparations, must be such as to give the desired results with the particular dyestuff employed. For example, kaolin requires a considerably greater quantity of binding agent than the color lakes.

In order to apply the coloring matter to the paper surface, smooth board is employed on which the paper is stretched and then the coloring matter is applied with a brush made of pig's bristles. The color is then smoothened over the paper surface by means of a softer brush. The painted paper is then allowed to dry. The paper that is used for this purpose must be smooth and can contain chemical pulp, but it must be quite thoroughly sized. Farbe und Lackle, 1925.

Tabulation of Dry Material in Waste Sulphite Liquor

THE following tabulation, which is taken from the Papier Fabrikant, volume 22, page 177, shows the relation between the density, degree Be. and the percentage of dry material obtained from different sulphite cellulose waste liquors. The dry extract is determined by mixing the residual sulphite liquor with sand and then drying to a constant weight. The last two columns in the tabulation show, for example, that if one cubic meter of residual liquors at a concentration of seven degrees Be. are brought up to a concentration of 35 degrees Be., there will remain 200.3 kilograms and there will have been evaporated 851.7 liters of water:

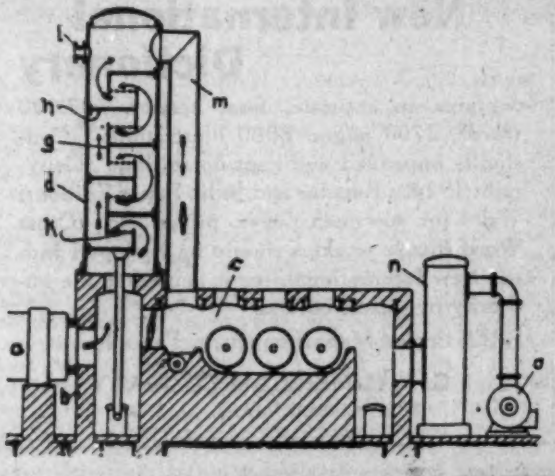
				For one cubic meter of 7 degree Be. waste liquor by concentration to the following densities:	
Density.	Degrees Be. at 15 degrees C.	Dry extract in kilos In one cubic meter.	In one ton.	There is obtained in kgs. of liquor.	It is necessary to evaporate water in liters.
1,052	7	112,5	106,9	....	....
1,060	8	130,5	123,1	913,6	138,4
1,067	9	148,5	139,1	808,5	243,5
1,075	10	166,5	154,5	727,9	324,1
1,083	11	184,5	170,3	660,4	396,6
1,091	12	203,5	186,5	603,0	449,0
1,100	13	223,0	202,7	554,8	497,2
1,108	14	242,0	218,4	514,9	537,1
1,116	15	262,5	235,2	478,1	573,9
1,125	16	283,0	251,4	447,3	604,7
1,134	17	303,5	267,6	420,3	631,7
1,142	18	324,5	284,1	395,8	656,2
1,152	19	345,5	299,9	375,0	677,0
1,162	20	366,5	315,4	356,6	695,4
1,171	21	387,0	330,5	340,3	711,7
1,180	22	408,5	346,2	324,8	727,2
1,190	23	430,5	361,8	310,8	747,2
1,200	24	452,5	377,1	305,2	746,8
1,210	25	475,5	393,0	286,2	765,8
1,220	26	499,0	409,0	275,0	777,0
1,231	27	523,5	425,3	264,4	787,6
1,241	28	547,5	441,2	255,5	796,5
1,252	29	572,5	457,3	245,9	806,1
1,263	30	598,5	473,9	237,3	814,7
1,274	31	625,5	491,0	229,0	823,0
1,285	32	653,0	496,0	226,9	825,1
1,297	33	681,0	525,1	214,2	837,8
1,308	34	709,5	542,4	207,3	844,7
1,320	35	741,0	561,4	200,3	851,7
1,332	36	772,5	580,0	193,9	858,8
1,345	37	804,5	598,2	188,0	864,0
1,357	38	836,5	616,4	182,4	869,6

Coloring of Paper

IT IS not always an easy matter to obtain a properly colored paper, the shades of which will be resistant to light, to alkalies, to acids and at the same time be cheap. It has been found that sumac is an important fixative or mordant in the coloring of papers with basic dyestuffs. Dull tones are obtained in this manner. Tannin is also an important mordant for basic dyestuffs with bright shades. Barium chloride is an important precipitant for the acid dyes, while lead nitrate and lead acetate, which are poisonous salts, are applicable to dyeing with chrome yellow. Iron sulphate, on the other hand, is important as a mordant in dyeing with chamois colors and for the production of light brown shades. Copper sulphate is employed in dyeing with logwood and also has an important action in increasing the fastness of the diamine colors to light. Acetic acid is used largely for dissolving the basic dyestuffs in water which contains lime salts. Zellstoff und Papier, 1925, Number 2.

Removal of Odor from Sulphate Waste Gases

THE evil-smelling constituents of the waste gases that are derived from the manufacture of sulphate pulp and which consist principally of mercaptans have always been a great trouble to the paper maker. A very rapid and cheap method for accomplishing the removal of these foul gases is described in German Patent No. 405,612. The gases are led through the black liquor which is derived from the manufacturing



process and which has a concentration of from 6 to 10 degrees Be. The black liquor may then be employed in the usual manner in the manufacturing process.

The arrangement for accomplishing this is seen in the accompanying illustration. The gases that are produced in the rotating digester (a) are led into the space (b) of the evaporator (c). The washing tower (d) is connected with the space (b), this tower being provided with internal arrangements for conducting the gases in a circuitous passage. The direction of the travel of the gases is broken in this manner with the result that ample time is allowed for the black liquor to come into intimate contact with the foul-smelling gases. The black liquor is allowed to enter the tower through the inlet (l) which is at the upper end of the tower (d). The gases that are freed from their evil-smelling constituents are led away through the pipe (m) to the evaporator (c). An auxiliary wash tower (n) is placed behind the evaporator. This tower is constructed in the same manner as the one just described. The fan (o) is placed at the end of the installation and serves to draw the gases out of the system. Due to the fact that the towers are arranged behind the rotary furnace, the waste gases contain only a small amount of moisture and the removal of the odors from the gases is consequently easier than if the wash tower were located at another point.

The process and apparatus are patented in German Patent No. 405,612.

Rendering Paper Rigid

THE paper articles are placed in a stove, under vacuum and heat to free the pores from air and humidity, and then impregnated with suitable substances which enter the stove and remain there a determined period either under vacuum or under pressure or not according to the extent of the impregnation that is desired. Subsequently, the articles are subjected to a heating operation to evaporate the solvent of the impregnated substance, if one is used, and then comes

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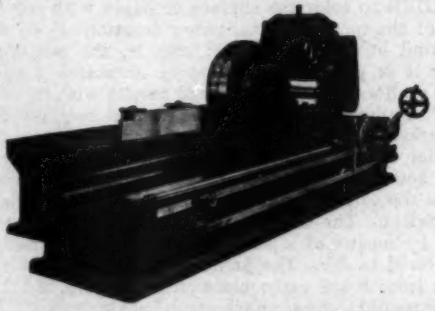

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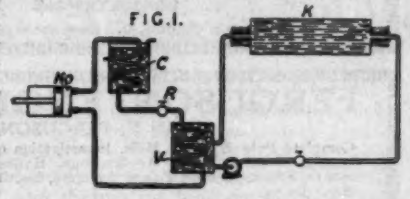
the baking operation to confer rigidity and impermeability to the article. World's Paper Trade Review, 1925, 744.

Calendering Paper

THE illustration shows an apparatus which has been patented in England by the Koholyt A. G. and which is used in the calendering of paper. In moistening paper prior to the glazing or satining process, the paper is cooled to a temperature below that of the surrounding air, preferably below the dew point and the moisture is thus precipitated from the air onto the paper.



The cooling is accomplished by means of a cylinder (K) which is located immediately after the drying cylinders. Connected to the cylinder (K) is a compressor (Ko), a condenser (C), evaporator (V), and control valve (R). The evaporator (V) may be arranged within the interior of the cylinder (K).

By-Products from Manufacture of Sulphate Pulp

IN THE special number of Suomen Teollisuus of Finland, November, 1924, there was contained a description of the utilization of various by-products that are obtained from the manufacture of sulphate cellulose. Mention is made of the pitch which is derived from the liquid rosin and which is used for caulking ships' bottoms and also in the manufacture of printing black. The methyl alcohol industry is also an important one in that country as well as the manufacture of formaldehyde.

Moistening the Paper in Glazing

THE process of glazing or high calendering is employed for giving the surface of the paper or the cardboard the proper luster and finish. One of the most important points in the calendering process is the moisture content of the product or, in other words, the moistening that takes place during the calendering or glazing process. Moistening is accomplished generally by special devices for adding water to the paper web. These devices may take the form of brushes or sprays, and this apparatus is frequently connected right on the paper-making machine. It is also advisable to lead the paper web from the paper-making machine first through a cooling device. When this is done no wrinkles are formed in the paper sheet. It is also customary to moisten the paper in the form of a roll before it is calendered, and this process is carried out in special apparatus.

It is important that the paper that is moistened in this manner be allowed to remain in a cool place for a certain length of time, so that the moisture is evenly distributed throughout the mass of paper. This room must be cool and free from drafts. If the conditions in this room are not properly controlled, then there is danger that the outside of the rolls will soon dry. This is detrimental to the proper operation of the calendering process, for folds will be formed in the paper web, as the edges of the paper will be more taut than the center.

One of the best ways in which to secure proper moistening of the paper is to allow the rolls to remain in the storage house for a period of six weeks to three months after the paper is made without the use of artificial moistening. Of course when this process is employed, the storage house must be properly constructed and is generally built over or near a pond of water or a channel is led through the house, covered with perforated iron plates, through which a stream of water is constantly flowing. The evaporation of the water in a natural manner supplies the moisture that the paper requires and avoids the irregular moistening that is hard to prevent when artificial methods are employed.

However, it is unfortunate that the time involved in this process renders it uneconomical in most cases and artificial moistening must be resorted to. But in this case as well it is essential that the moisture-laden paper be allowed to stand for a certain length of time before it is calendered. Much trouble is saved later on when this precaution is taken.

The storing of the paper is particularly important in the case of printing papers which are stretched in the process of printing.

In order for the paper to possess a high finish, it is necessary that it be manufactured from the right kind of raw materials which must also be prepared in the proper manner. If the paper is moistened too much, then there is always danger that the calendering process will not give good results. As it is said, the paper "prints" on the rolls and becomes black. The pressure that is applied to the calender rolls must be greater than that used with half matt or matt papers. The amount of pressure which a paper can stand between the calender rolls depends on the composition of the raw materials that were employed in its manufacture. Thus the degree of softness of the stock, the use of rag stock or chemical pulp are determinating factors. The character and the number of the calender rolls are also important. Zellstoff und Papier, 1925, page 11.

Plans for Chemical Court of Achievement

Chemical products, equipment and processes, in fact, all new developments of American chemistry of the past few years, will each receive unusual recognition at the Tenth Exposition of Chemical Industries to be held this year during the week of September 28th to October 3rd at the Grand Central Palace, New York. Plans for the new "Court of Chemical Achievement," inaugurated at the recent meeting of the advisory committee of the exposition, are rapidly taking shape. Outstanding achievements of American chemistry, whether in the research or industrial field, which have been completed during recent years, will be admitted to the court after they have passed a committee of approval of the American Chemical Society.

The new "Court of Achievement," which bids fair to be the outstanding feature of the Chemical Exposition this year, will be in the form of small unit exhibits together in one large specially arranged group. Among the new products which have been suggested to be displayed and explained by members of the American Chemical Society, who will oversee the exhibits, are 27 recent developments. This list will probably be increased several times by other new chemical products, instruments, and explanations of new processes.

All exhibits will be passed upon and admission to the "Court of Achievement" granted by a committee of the American Chemical Society known as the committee of approval, which is composed of Marston T. Bogert, chairman, C. M. Stine, E. R. Weildlein, F. W. Willard and John Johnston. A subcommittee of the Chemical Exposition advisory committee, composed of H. E. Howe, chairman, F. J. Metzger and T. B. Wagner, will act in an advisory capacity to the exposition management in the general conduct of the new project.

Entries for new products and processes for the Court of Achievement must be sent to *Court of Achievement*, Room 1102, Grand Central Palace, New York, prior to May 1st, after which time applications will not be considered. A nominal fee will be charged for all exhibits in the court except those of institutions of learning and Government bureaus or departments which will be accepted without charge if they pass the judges. A brochure will be printed and distributed from the Court of Achievement at the exposition. Full information can be secured by inquiring at the address indicated above.

Import Committee Secures Customs Expert

John R. Hecht, assistant appraiser at the port of New York, has taken up new duties with the Import Committee of the American Paper Industry as the customs expert for the committee.

Mr. Hecht has been in the customs service for many years, and is regarded as one of the best posted men in the Treasury Department on technical paper problems involving the application of the tariff act.

The Import Committee now occupies new offices at 15 William street, having Room 1021 in the same building now occupied by Henry A. Wise, general counsel for the committee. This greatly facilitates the work of the committee.

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Controlling the Bleaching of Sulphite Pulp
Cooking of Sulphite Cellulose
Malodorous Substances in Sulphate Pulp Mills

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Write to THE PAPER INDUSTRY, 356 Monadnock Bldg., Chicago, Ill.

New York, April 1, 1925.

THERE seems to have developed a general slowing down of activity in the paper market. The closing days of March were a period of anything but brisk operations on the part of buyers of paper; the demand slumped to quite a noticeable degree, and the market took on a quieter tone than has been evident thus far this year. From all indications, the reaction in demand was due not to any condition existing within the paper industry but to the general situation in the business world. Markets for nearly all commodities, manufactured and raw, quieted; just why, no one ventured to say exactly, although most authorities attributed the slowing down of business to the sharp break in securities and the resultant retrenchment in buying due to apprehension on the part of manufacturers, merchants and the public at large that the decline in the stock market foreshadowed a business lull.

It might be said that business itself created a lapse of activity for itself. January and February admittedly were months of good activity in practically all lines of business. The paper industry shared along with other important industries fairly voluminous business. Then about the middle of March confidence in the securities' position appeared shaken and an avalanche of sale orders of nearly every issue of stock on the Stock Exchange caused prices of securities to tumble at a rapid rate. Manufacturers became cautious and drew in their lines as regards the purchase of raw material and other supplies. Merchants and retailers slowed down their buying operations, and the general public, noting the decline in the stock market, dimished its buying of almost everything. Thus a lull in trade activity has been brought about, and judging from indications, it is due more to the stock market fall than to any other cause. The situation in the paper market is quite similar to that in other commodity markets. Contract business is continuing without a let-up, and consumers as a rule are placing orders day by day for such additional amounts of paper as they find they require, but there is less snap to the demand and it is clearly apparent buyers are limiting their operations to cover immediate needs. Jobbers state that the volume of individual orders has decreased still further, manufacturers report increased difficulty in inducing merchants and large consumers to buy, while the general situation is such that little else than routine activity prevails in the market.

However, there has been virtually no change in paper prices. The tone of prices is steady despite the sagging of demand, and there appears scant reason to expect any change in quotations. Manufacturers argue that they can ill afford to reduce paper prices regardless of market conditions. They are marketing their product on a very narrow margin of profit and consequently are determined to maintain prices. Instances of recessions in quoted rates have been few and far between, and it is probably a lesson to users of paper to witness demand slowing down to a pronounced degree and see prices hold so firm; certainly this should emphasize the healthy position and stabilized condition of paper prices.

Opinion is common that the lull in business is temporary only. Fundamentally the situation throughout the country in all lines of trade is strong. There is no logical excuse for a sudden halting of buying other than a momentary feeling of apprehension among consumers. Stocks and bonds rose so high that the public did not stop to realize they were on abnormal levels, with the result that when the securities market began dropping the public—and business men included—did not appreciate that the reaction was largely a matter of readjustment. As soon as the scare blows over it is believed business will pick up quickly and that trade activity will be nearer the scope enjoyed earlier in the year.

Production of paper in the United States in January showed a fairly substantial increase as compared with the preceding month, according to the monthly statistical summary compiled by the American Paper and Pulp Association. The January production, amounting to 487,536 net tons of all grades, was 7 per cent larger than in December, when the output totaled 458,637 tons, following a 2 per cent gain over November. All grades showed an increase in January over December, with the single exception of hanging paper. Mill stocks of paper decreased during January from a total of 249,516 net tons of all grades at the end of December to 240,424 tons at the end of January. Shipments from mills totaled 483,253 tons during January, compared with 451,666 tons in the preceding month.

The monthly report issued by the Department of Commerce on the box board industry showed that board mills of the country operated close to full capacity on a five-day-a-week scale during February. Board production in February totaled 172,036 net tons of all kinds, which was 99.2 per cent of the capacity of the board manufacturing plants. This output, however, was below the 195,427 tons produced in January, when mills operated at 107.6 per cent of capacity. Orders received during February called for 159,632 tons of board, contrasted with 196,764 tons in the preceding month, while unfilled orders at the end of February amounted to 99,060 tons, compared with 112,495 tons at the end of January. Stocks of board at mills at the end of February were 48,818 tons, against 47,275 tons at the close of January.

Newsprint is moving into consuming channels in consistent fashion. There has been little slowing down of demand for this class of paper. Perhaps some transient buyers have evinced less interest, but as a general thing manufacturers are producing as much paper at present as at any time in recent months and are finding a ready outlet for it among publishers. Most newspapers are printing large issues; in fact, the dailies in New York have increased the size of their editions in the past few days, reflecting the larger amount of advertisements apropos of the spring retailing season. The Department of Commerce reports that newspaper space devoted to advertising in 22 large cities during January, aggregating 93,088,000 agate lines, represented a seasonal decline from the December total of 102,667,000 lines, but was larger than a year ago, the January, 1924, total lineage being 92,741,000 lines.

Book paper is in fair demand. The market has quieted to some extent lately, but this had not affected those mills catering principally to contract buyers, while transient demand keeps up in sufficient volume to warrant moderately large production by other mills. Prices of book paper are quotably maintained. It is true probably that some manufacturers are granting slight concessions when circumstances justify, but buyers as a rule find it necessary to meet the rates named to fill their wants.

Coarse papers are better stabilized in price than they have been in some time. This is due in part to the fact that wrapping has enjoyed fair market activity in the last several months, and is still moving in good volume from mills. Moreover, foreign competition is becoming less and less keen. Tissue is steady in price and in fair demand.

Fine papers are holding their own in price. Demand has simmered off a little recently, and there is some complaint from manufacturers and jobbers over the small quantities individual buyers order. However, reports say that mills are keeping fairly well engaged.

Box boards are in better demand than they were a short while ago. This is a seasonal condition, board consumption being fairly large at present owing to the broader call for paper boxes apropos of the spring shopping season. Board quotations are maintained and there is less price-cutting going on than the industry has witnessed in years.

The Wyandot Indian has gone—but the resources of his former land are being put to a wonderful use by an institution worthy of the name, Michigan.

Will You Take a Trip With Us?

SODA ASH may be soda ash; and caustic soda may be caustic soda.

But the heart and life and soul of the institution which produces them cannot be judged by a glance at a handful of the product a thousand miles from its source.

Neither can consumers of alkali appreciate the completeness of the Michigan Alkali Company's control of raw materials, and the meaning it has to them, until they see for themselves the facilities that make a flow of production which is never failing—everlasting.

So take a trip with us during the next few issues of this magazine—a trip through our plants, our warehouses and our foundries—a trip over our railroad and on our steamships—from our quarries in Alpena, to our coal mines in Pennsylvania, and back again to Wyandotte. . . . Then you will know what "Wyandotte Brand" really means.

You will understand more clearly why the Michigan Alkali Company can fulfill the most unexpected demands; why it can meet emergencies; and why it has never failed a customer.

And you will understand, too, why Wyandotte Brand is "distinguished for its high test and uniform quality."

It's a vital story, that of Wyandotte—vital to every buyer of alkali.

Perhaps, after you have taken this trip with us, you will not feel so strongly that "soda ash is soda ash." Perhaps you, like thousands of others, will find Wyandotte *uniformly a little better.*

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The story of Wyandotte Brand will begin in the May issue of this publication.

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General Sales Department

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Works: Wyandotte, Michigan

Soda Ash Caustic Soda Sodium Bicarbonate

Papermaking Rags

Although in some of its divisions greater firmness has been noted, the papermaking rag market is still very much in favor of buyers of rags. Consumers are filling their requirements without difficulty in locating available supplies and at very nearly their own prices—so long, of course, as they offer prices within reasonable bounds. In some classes of stock buyers are succeeding in purchasing at further recessions, and it might be said that the tone of the market from a general standpoint is anything but strong.

However, the lowest class of papermaking rags displays increased steadiness—in fact, roofing rags have advanced to some extent, and it is quite apparent that, following a fairly long period of market weakness, during which prices declined sharply, the tendency now is upward, notwithstanding the season of the year and despite the careful buying of roofing paper manufacturers. Doubtless this improved position of roofing stock is the outstanding market feature at present.

The rag market has not run true to form thus far this year. Ordinarily mills buy fairly steadily during the first two or three months of the year and then let down in their absorption of supplies while waiting for spring collections to increase the available amounts of rags; therefore prices usually hold firm early in the year and are marked by a down trend in the spring, when consumers hold off in buying. This year most mills decreased their buying early in February, especially the roofing-paper plants, and prices shot down with great rapidity until along about the middle of March some grades of rags were selling at a decline of very nearly 50 per cent. Now, at the time when normal demand slackens and prices recede, demand shows signs of broadening and prices on at least some classes of rags exhibit a firming tendency. What is likely to happen in the next several months is anybody's guess. If spring collections prove large, prices may be kept down at present levels or perhaps forced lower; on the other hand, if collections are light and consumers come in to buy in a broader way, prices may score sharp advances. It is solely, as it always is, a matter of supply and demand, or to put it probably more properly, demand and supply, because rag prices are governed more by demand than by supply.

A bullish factor is the strength shown by the rag markets in Europe. In roofing stock, for example, prices worked down to where purchases of foreign dark colored cottons were made by mills at as low as 2.10 cents a pound ex dock New York. Not many such rags were obtained at this price basis for forward shipment from abroad, and shippers in Europe soon marked up prices to where they demanded at least 2.25 cents landed New York, and at present most quotations range around 2.40 cents for dark cottons for April or May shipment from primary sources. This firming of values abroad caused mills to turn to domestic roofing rags and increased demand for roofing stock of domestic origin quickly sent prices up to $3 to $5 a ton toward the end of March. At the moment the market is characterized by firmness and seems likely to rise higher if demand from mills keeps up.

The better grades of old rags, on the other hand, are far from firm in price. Neither are new cuttings firm, except a few grades which are in small supply and which there has been a run of demand for. Also, most of the better qualities of foreign rags are easy in price. The greatest firmness in the entire market is in the lowest class of rags—roofing stock.

The prices prevailing in the East on roofing rags are reported higher than in the Middle West, which is somewhat unusual because ordinarily the opposite is the case. New York dealers report sales of No. 1 roofing stock at 2.35 cents a pound f.o.b. that city, and of No. 2 packing at 2.10 cents. In the West it is stated roofing stock is selling around 1.80 cents for No. 2 grade. Importers quote 2.40 cents a pound ex dock New York and higher for foreign dark cottons on the spot in this country, while at least 2.30 cents is asked for these rags for forward shipment from abroad.

Quotations on old whites are very irregular. Possibly a good No. 1 repacked white could be bought at 7 cents a pound at dealers' shipping points, whereas 8 cents and higher are demanded for some packings. No. 2 repacked whites are quoted between 4.75 and 5.25 cents. Repacked thirds and blues are selling at 3.75 to 4 cents per pound at dealers' points, and miscellaneous blues at 3 cents and less.

New cuttings of most descriptions tend downward, notwithstanding dealers' contentions that production is at a low point and that there is little accumulation of such rags. There are scarce grades like unbleached muslins, khaki cuttings, blue overall cuttings and bleached shoe cuttings which are holding firm, but buyers in a majority of instances are sending other grades at price concessions. No. 1 white shirt cuttings are quoted at 15 cents a pound at shipping points, fancy shirt cuttings at 10.50 cents, and washables at 9 cents. Unbleached muslins are fetching 14.50 cents a pound, blue overalls 11.50 cents, O. D. khaki cuttings 7 cents, and bleached shoe cuttings 13 cents.

Average quotations f.o.b. shipping points and ex dock New York are as follows:

New Stock—	New York and Chicago
White shirt cuttings, No. 1	15.00-15.50
White shirt cuttings, No. 2	11.00-11.50
Fancy shirt cuttings	10.50-10.75
Washables, No. 1	9.00- 9.25
Unbleached muslins	14.50-14.75
White lawns	13.75-14.25
Overall cuttings, blue	11.50-11.75
Black silesias	6.25- 6.50
Light flannelettes	12.50-13.00
Canton flannels, bleached	13.50-13.75
Canton flannels, unbleached	12.25-12.50
Shoe cuttings, bleached	13.00-13.50
Shoe cuttings, unbleached	12.00-12.50
Light silesias	11.00-11.50
O. D. khaki cuttings	7.00- 7.25
Mixed khaki cuttings	6.25- 6.50
Corduroy cuttings	6.00- 6.25
Cottonade cuttings	5.25- 5.50
Linens, No. 1 white, foreign	17.00-18.00
Light prints, foreign	7.75- 8.00
Old Stock—	
Whites, No. 1, repacked	7.00- 8.00
Whites, No. 2, repacked	4.75- 5.25
Whites, house soiled	3.50- 3.75
Whites, street soiled	3.25- 3.50
Lace curtains	5.75- 6.00
Thirds and blues, rough	2.75- 3.00
Thirds and blues, repacked	3.75- 4.00
Black stockings	4.75- 5.00
Cotton canvas, No. 1	5.75- 6.25
White cotton batting	4.50- 4.75
Roofing, No. 1	2.20- 2.35
Roofing, No. 2	1.80- 2.10
Dark colored cottons, foreign	2.30- 2.40
Blue linens, foreign	5.50- 6.00
Gray linens, foreign	6.00- 6.50
White linens, foreign	10.50-11.50
Light prints, extra, foreign	4.00- 4.25

Rope and Bagging

Old rope continues in a firm market position. Reports are to the effect that paper manufacturers are buying freely and are granting steady prices; domestic No. 1 old manila rope is said to be bringing 7 cents at shipping points in frequent cases, although some sales at slightly less are reported. It is

The Trimbey Automatic Consistency Regulator

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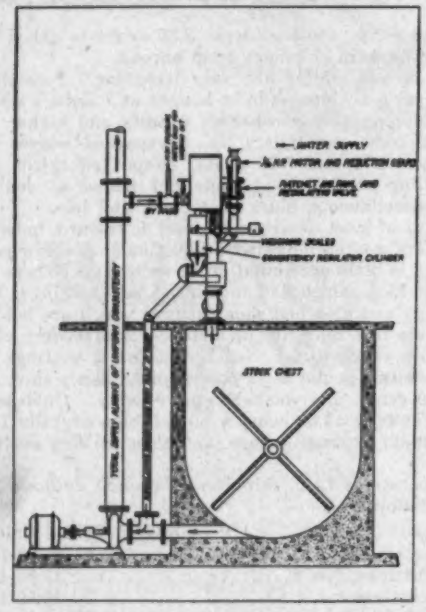

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345 of these machines are now in use in the United States, Canada, Newfoundland and in seven Foreign Countries.

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Glens Falls **New York**

(Also "Made in Canada")

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"Steel for Strength—Wood for Durability"

apparent buyers are directing most of their attention to domestic rope. This is due probably to the relatively high prices asked for the foreign article; dealers abroad seem possessed of high price ideas and are quoting rates which importers state necessitate that they secure as much for foreign as for domestic old rope. Mixed strings are firm and in good demand. Ordinary packing is selling at around 2 cents a pound at shipping points, but carefully packed strings are fetching 2.25 cents and possibly more.

Paper mills are buying No. 1 scrap bagging in a routine way and are granting about 2.75 cents a pound f.o.b. dealers' points for strictly No. 1 stock. Roofing bagging is selling at 1.70 cents a pound or thereabouts at shipping points, but is showing more firmness along with the strengthening of roofing rags. Gunny bagging is quiet and rather nominal in price.

F.o.b. shipping point and ex dock New York quotations follow:

	New York and Chicago
Gunny, No. 1 domestic	2.85-3.00
Gunny, No. 1 foreign	2.75-2.90
Scrap bagging, No. 1	2.60-2.75
Roofing bagging	1.65-1.75
Wool tares, heavy	2.75-3.00
Wool tares, light	2.65-2.85
Manila rope, No. 1 foreign	6.50-6.75
Manila rope, No. 1 domestic	6.75-7.00
Sisal strings	3.00-3.25
Mixed strings	1.90-2.25

Old Paper

The best that can be said concerning the old paper market is that prices of most grades have shown little change in recent weeks; that the mere fact that values are on levels where packers and dealers complain there is little or no profit for them serves to hold up the market. The situation is all in favor of the buyer. Anyone wanting waste paper supplies and willing to pay prices within reason has no trouble placing orders even at slight price concessions. Demand is not large enough to make for strength in values, consequently dealers are selling for what they can get, as is usually the case when the call for supplies is slow.

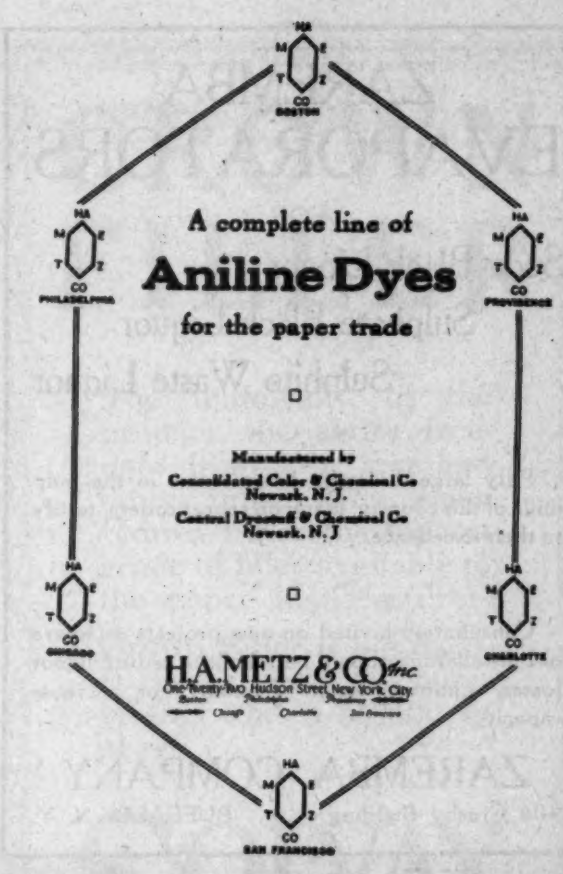
Prices, as quoted, vary considerably. The New York market, it is reported, is very easy, and the low prices prevailing in that center have an influence of a bearish nature in other large accumulating cities. Shavings are selling at about 3.75 cents per pound f.o.b. shipping points for No. 1 hard white, and 3.15 cents for No. 1 soft white shavings. Old books and magazines of No. 1 grade are available to mills at 1.20 cents a pound at dealers' points, and crumpled books at 90 cents a hundred pounds. Sales of ledger stock have been reported at 1.50 cents a pound, of No. 1 kraft paper at 1.85 cents, and of No. 1 manilas at 75 cents. Folded news is quoted between 60 and 70 cents per hundred pounds at shipping points, and No. 1 mixed paper at 45 to 55 cents.

The following are prices f.o.b. shipping points:

	New York and Chicago
Hard white shavings, No. 1	3.65-3.80
Hard white shavings, No. 2	3.00-3.25
Soft white shavings	3.00-3.20
Colored shavings	1.40-1.60
Heavy book, No. 1	1.20-1.35
Crumpled book, No. 1	.90-1.00
Ledger stock	1.50-1.65
Kraft, No. 1	1.85-2.00
Manilas, No. 1	.75- .85
White blank news	1.85-2.00
Over-issue news, No. 1	.70- .80
Folded news	.60- .70
Mill wrappings	.65- .75
Mixed paper, No. 1	.45- .55
Common paper	.30- .35

Chemical Pulp

Reports tell of a steady movement of chemical pulp from producing to consuming centers, and of prices holding quite firm. There is nothing unusual in the current demand for pulp from the angle of the tonnage wanted by buyers. Most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consumers are ordering in a reserved manner, seldom contracting for supplies other than needed directly, yet there is a fairly large demand, and most pulp mills are better fixed with orders than in a long time, which is a bullish market factor.

The fact that foreign pulps are firm, and in some instances have scored at least slight advances, has created additional demand for domestic fibre. In bleached sulphite, for example, it is reported a splendid demand prevails for the domestic grades, and one of the principal domestic producers of this class of pulp is said to have advanced quotations on its most popular brand of bleached sulphite $2.50 per ton, representing the first revision made in prices in a year or longer. Bleached sulphite is quoted at from about a low of 3.75 cents up to 4.25 cents for the No. 1 grade for bond paper mills. Easy bleaching sulphite is firm at 3 cents and higher f.o.b. pulp plants, and No. 1 unbleached sulphite is quoted at around 2.85 cents a pound. No. 1 kraft pulp is selling around 3 cents a pound at producing points. Screenings are in good call, and refined sulphite screenings are fetching 1.50 cents per pound and higher at pulp mills.

F.o.b. pulp mill quotations follow:

Bleached sulphite	3.75-4.25
Easy bleaching sulphite	3.00-3.10
Unbleached sulphite, No. 1	2.75-3.00
News grade sulphite	2.60-2.75
Soda pulp, bleached	3.50-3.75
Mitscherlich, unbleached	3.25-3.75
Kraft, No. 1	2.90-3.15
Screenings, refined	1.50-1.65

Mechanical Pulp

Ground wood does not display quite so strong an undertone as it did a comparatively short while ago. The reason for this is none other than that water conditions have improved to such a degree that grinders in nearly all of the important producing regions of the United States and Canada have been able to increase their output, with the result supplies are more plentiful than during the winter months when frozen mill streams handicapped manufacturers and kept the production down. However, very little change has occurred in quoted prices. Most grinders are well sold up and also are using pulp at a good rate themselves, so that not much selling pressure is observed. Buyers are finding it necessary to meet the prices quoted to cover their wants, because there is no weakness in the market prompting sellers to cut rates.

Quotations on domestic ground wood range around $33 per ton f.o.b. producing plants, some prices being a couple of dollars a ton under this figure and some higher, depending on the air-dry test and the freight to consuming centers. Canadian grinders are quoting $30 to $33 a ton f.o.b. pulp mills, while imported ground wood from Scandinavia is quoted around $35 a ton ex dock New York.

Chemicals

Current demand for papermaking chemicals is along routine lines. There is a fair amount of buying interest, but consumers seem to be endeavoring to cover their direct needs only and are therefore ordering in limited volume. Quotations are holding about steady in most cases. Bleaching powder is quoted at 1.90 to 2.10 cents a pound f.o.b. works, the lower figure being named to contract buyers. Casein ranges in price from 11.50 to 12.50 cents a pound, while soda ash is steady at 1.38 cents per pound on a flat basis at works. Caustic soda is quoted 3.10 to 3.15 cents per pound.

Average quotations f.o.b. works are as follows:

Alum, lump ammonia	3.25- 3.50
Alum, lump starch	3.75- 4.00
Blanc fixe, powder	3.75- 4.00
Bleaching powder	1.90- 2.10
Brimstone (long ton, at mine)	18.00-19.00
Casein (duty paid)	11.50-12.50
Caustic soda, spot delivery	3.10- 3.15
China clay, domestic washed	12.00-16.00
China clay, foreign	15.00-20.00
Rosin, grade E	6.60- 6.80
Satin white	2.00- 2.25
Soda ash, 58 per cent light (bags)	1.38
Starch, papermakers', in bags	3.40- 3.70
Talc (ton)	16.00-17.00

CROWN FILLER

The uniformity of the product, the entire freedom from grit, dirt and other impurities make Crown Filler the highest grade of filler available to the paper manufacturer.

Crown Filler is not dyed. It is naturally a pure, bright white, *absolutely pure!*

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New Papers

Writing—	
White rag	22-45
White sulphite	11-30
Colored rag	17-40
Ledger—	
White rag	22-50
White sulphite	13-30
Colored sulphite	40-30
Colored rag	17-50
Bonds—	
White rag	20-45
White sulphite	10-30
Colored sulphite	10-30
Colored rag	17-50
Book—	
No. 1 S. & S. C	6.25- 7.00
Machine finished	6.00- 6.75
English finished	6.25- 7.00
Coated and enameled	8.00-14.00
Lithographed, M. F	9.00-15.00
Newsprint—	
Rolls, contract	3.50- ....
Rolls, transient	3.65- ....
Sheets	4.00- 4.25
Side runs	3.00- 3.25
Cover Stock—	
Coated, both sides	10.25
Coated, one side	10.15
Tissue—	
No. 1 white, 20x30	.75- .85
No. 2 white, 24x36	.70- .75
No. 1 manila, 24x36	.70- .75
Kraft	.90- 1.00
Wrapping—	
No. 1 Kraft	5.50- 6.25
No. 2 Kraft	5.00- 5.50
Boards—	**New York and Chicago**
Solid news	55.00-60.00
Straw	50.00-55.00
Plain chip	50.00-55.00
White coated chip	65.00-70.00
Manila coated chip	55.00-60.00
Binder's board	70.00-75.00

Import Committee Pleads for a Definition of Standard Newsprint

The Import Committee of the American Paper Industry, whose offices are at 15 William street, New York City, has applied to the Treasury Department for the adoption of a definition of standard newsprint, and in urgently recommending it has given the following as their reasons therefor:

"By the Tariff Act of 1922, the Congress of the United States placed 'Standard Newsprint' on the free list. No definition of the term is to be found in the statute. Everyone who knows anything knows that Congress intended that newspaper publishers in the United States should be excused from the payment of duties on standard newsprint paper imported by them for publishiing their newspapers; and that it only intended to accord this privilege to publishers and only as to standard newsprint paper. By the same Tariff Law, duties are imposed on practically every other kind and description of paper.

"The Treasury Department is left to determine what constitutes standard newsprint, and in view of the fact that there are numerous ports of entry, it is hardly reasonable to suppose that the customs officials at all of these ports are equipped with sufficient knowledge of the paper industry to enable them to properly classify all importations with which they will have to deal.

"As the tariff provides duties upon all papers other than standard newsprint, it is the duty of the Treasury Department to collect the proper duty upon all such papers. Of necessity, therefore, some proper definition must be arrived at for the guidance of customs officials, which will result in uniformity in the application of all provisions of the act, which will permit entry at all ports of standard newsprint free of duty, and result in payment of proper duties by all other papers. No honest man can complain if this result is accomplished.

"The publishers of this country are dependent upon American mills for approximately one-half of their requirements of standard newsprint paper. Destroy these mills and what will be the result? Under the Tariff Act the book paper, the wrapping paper, and all other paper mills in this country, except those producing standard newsprint paper, are given some protection against foreign papers. If European papers are being imported to compete with their products they have the right to protection given by the tariff, and surely the American publishers cannot claim to be hurt if paper imported and misclassified as standard newsprint for the purpose of being sold and used here as book, wrapping, etc., is made to pay the proper duties.

"That attempts are being made almost daily to bring in European paper under classifications cannot be denied. And that such practices have resulted and are resulting in creating serious disturbance is a well-known fact. So much harm has resulted that it became necessary for the American manufacturers to organize to protect themselves against the consequences of such illegal practices. Accordingly the import Committee was organized and now has the support of a very substantial part of the American paper industry.

"This committee is working with the single view to seeing that all importations of paper are properly classified and that those subject to duties are required to pay such duties and those entitled to free entry are admitted duty free. This committee has the support and backing of many manufacturers of standard newsprint paper, as well as of the other branches of the industry.

"In applying to the Treasury Department for the adoption of a definition of standard newsprint it has had no desire to impede the movement of any paper that may legitimately be said to be standard newsprint.

"The Treasury Department now has under consideration a definition approved by the Department of Commerce, Bureau of Standards. The Import Committee urgently recommends this definition.

"The adoption of this definition will, it is believed, accomplish the purpose of Congress as manifested in the Tariff Act. It will not, in anywise, interfere with the free importation of any paper that legitimately may be described as standard newsprint paper. It will put an end to a flood of European papers which are in nowise affecting the standard newsprint market but are causing irreparable injury in other branches of the industry. It will establish a standard whereby all papers entering the United States, at all ports of entry, will be uniformly classified and thereby a condition of certainty will be established which must result in stability in all branches of the industry to the benefit of all concerned."

The Joint Committee on Approved Chemists, of the American Paper and Pulp Association, has recently approved for listing Mr. Ralph W. Fannon, of Green Bay, Wis., and Mr. A. R. M. MacLean, of J. T. McDonald & Co., Ltd., 40 Belmont street, Montreal, P. Q., Canada.

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SULPHITES
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PAPER

PRINTING PAPER
OF
EVERY DESCRIPTION

EXPORTS

Exports of paper and paper products from the United States during the calendar year 1924 were valued at $24,578,872, according to preliminary figures issued by the Department of Commerce. This sum represents a decrease of 4 per cent compared with the total value of like shipments in 1923, but a comparison of the various classes indicates that the loss in value was a result of a change in the character of the exports, together with a general downward trend in prices, rather than an actual reduction in the volume of shipments, which, as a matter of fact, were approximately 10 per cent greater than in 1923.

An encouraging feature in the 1924 exports was the improvement shown by a majority of the various classes of paper during the last quarter of the year. This uptrend was not only noticeable in such items as newsprint, hanging paper, building papers and wall boards, in all of which during 1924 American exporters were able to increase their sales, but also was apparent in a number of those classes, such as book, wrapping and tissue papers, in which there was a decided reduction during the earlier quarters when compared with similar periods in 1923.

Shipments to the Latin-American region, with the exception of Mexico, again registered a decrease in 1924, the reduction being particularly noticeable in such lines as printing, writing, wrapping and tissue papers, in which competition from European mills has been particularly keen. In the Far Eastern markets, however, American exporters were more successful, especially in such lines as newsprint, coarse boards, toilet paper and photographic paper.

The total exports of paper and paper products from the United States in 1924 and 1923, with percentages of increase or decrease, are shown in the following table:

	1923		1924		Percentage decrease (—) or increase (+)	
Class—	Pounds	Value	Pounds	Value	In quantity	In value
Newsprint	33,714,732	$1,636,937	34,317,278	$1,773,187	5+	8+
Book paper, not coated	26,597,921	3,001,149	18,581,795	2,078,589	—30	—30
Cover paper	1,197,327	210,061	839,670	161,644	—30	—23
Grease-proof and waterproof paper	1,640,980	219,715	1,567,213	184,675	—4	—16
Kraft wrapping paper	873,373	79,737	638,583	72,609	—29	—9
Other wrapping paper	25,873,856	2,006,840	24,420,296	1,988,367	—6	—1
Writing paper	6,208,162	1,945,911	4,371,695	702,967	—30	—32
Surface-coated paper	3,973,675	905,634	3,357,609	805,920	—15	—16
Tissue and crepe paper	3,375,634	846,808	2,930,456	794,861	—13	—6
Toilet paper	4,631,538	545,176	4,345,816	504,525	—6	—7
Paper towels and napkins	1,201,945	205,602	1,400,406	226,675	17+	10+
Bristols and bristol board	1,576,018	161,211	834,917	106,073	—53	—34
Paper and strawboard	56,294,479	2,678,145	71,135,903	2,770,948	26+	3+
Sheathing and building paper	3,767,627	179,384	7,149,593	344,976	90+	92+
Wall boards (square feet)	16,623,665	611,548	17,490,076	578,908	5+	—5
Blotting paper	.....	.....	2,450,556	296,276	.....	.....
Filling folders, index cards	.....	.....	450,338	180,199	.....	.....
Cigarette paper and books	866,649	193,944	830,647	296,326	—4	53+
Photographic paper	1,451,654	1,399,158	1,586,309	1,569,633	9+	12+
Paper hangings (wall paper, yards)	22,944,547	576,022	23,215,550	606,484	1+	5+
Paper bags	8,740,561	830,353	10,413,910	958,871	19+	9+
Boxes and cartons	10,879,135	1,055,756	13,641,533	1,180,050	25+	12+
Carbon paper	377,428	490,690	398,568	707,559	5+	9+
Envelopes	2,812,654	350,344	2,443,861	481,318	—13	37+
Playing cards (packs)	9,828,008	1,121,986	6,869,159	755,737	—30	—32
Cash register and adding machine paper	1,198,515	130,606	1,250,940	137,250	4+	5+
Papeteries	417,656	155,902	424,343	153,781	1+	—1
Other paper and products, n. o. s.	34,371,210	4,803,619	43,692,566	4,498,282	27+	—6
Total	.....	25,682,749	.....	24,578,872	.....	.....

IMPORTS

Wood Pulp

Probably the most important development in the wood pulp markets abroad recently is the settlement of the strike of workers in the Swedish pulp mills and the termination of the lockout imposed by the manufacturers. The lockout went into effect March 16, following several postponements and repeated efforts on the part of the Government mediation committee to avoid the shutdown of the paper and pulp and other important industries in Sweden. According to reports, the pulp mill operatives had no grievance of their own but went on strike in sympathy with the paper, lumber, rubber and textile workers. The production of pulp in the Swedish mills thereupon came to a complete halt, and the market had commenced to stiffen when the labor difficulty was smoothed over and the lockout was ended on March 27.

It is estimated that the loss in pulp production during the period of the strike and lockout in Sweden approximated 24,000 tons of unbleached sulphite and between 8,000 and 9,000 tons of kraft pulp. Members of the trade familiar with the situation in Sweden say that it is possible the Scandinavian mills will make this loss up later in the year notwithstanding the fixing of a certain output for 1925, while some in the trade are of the opinion that the Swedish manufacturers will not make up the difference, not at least for a considerable time. However, it is not expected this loss in output will have any great influence on the market situation unless demand from America and other consuming countries should increase very appreciably.

The price tone of foreign pulp is firm. As a matter of fact, quotations have strengthened a little on some kinds of Scandinavian pulps. Kraft is very firm at about 3 cents a pound ex-dock New York, and sales have been recorded in excess of this figure, 3.05 and 3.10 cents having been mentioned. Bleached sulphite is firm also, and importers as a general thing ask 4 cents for the desirable brands of sulphite ex-dock New York. Strong unbleached sulphite is quoted at around 2.85 cents, with as high as 3 cents asked for extra strong pulps. There is no over-abundance of pulp offered, and sellers seem quite determined on securing the rates quoted. Reports state that consumers in Europe are purchasing Scandinavian pulps in good tonnage; in fact, it is said that at the moment a better demand is encountered from such sources than from the United States.

Pulp from Europe has been coming into the U. S. in heavy quantities recently. Scarcely a day has passed without some vessel reaching New York, Boston, Newport News or Baltimore with unusually large shipments of pulp, most of which supply, it is said has been against contracts and back orders. Government statistics put January imports of pulp into this country at a total of 126,999 net tons of chemical, valued at $7,489,052, compared with imports of 118,856 tons of a value of $6,989,798 in December last. Ground wood imports during January totaled 20,056 tons, against 26,096 tons in December.

Receipts at the port of New York during March and current market quotations ex-dock New York follow:

Bleached sulphite, No. 1	3.85- 4.25
Unbleached sulphite, strong, No. 1	2.80- 3.00
Unbleached sulphite, No. 2	2.60- 2.80
Easy bleaching sulphite	2.90- 3.15
Mitscherlich unbleached, genuine	3.00- 3.25
Mitscherlich unbleached, ordinary	2.80- 3.00
Kraft, standard Swedish	2.90- 3.10
Ground wood, per ton	35.00-37.00

Castle & Overton, 2,745 bls. from Hamburg and 512 Rotterdam; Price & Pierce, 4,960 bls. from Gothenburg; International Acceptance Bank, 1,895 bls. from Rotterdam; Lagerloef Trading Co., 991 bls. from Bremen and 836 Hamburg; E. W. Dutton, 185 bls. from Naples; Ira L. Beebe & Co., 5,535 bls. from Konigsberg and 3,618 Hamburg; J. Anderson & Co., 1,905 bls. from Hamburg and 586 Oslo; Borregaard Co., 300 bls. from Oslo; Equitable Trust Co., 1,318 bls. from Hamburg; National City Bank, 303 bls. from Hamburg; Pagel, Horton & Co., 4,000 bls. from Bremen; Buck, Kaier & Co., 549 bls. from Bremen and 600 Copenhagen; White Star Line,

J. ANDERSEN & CO.
21 East 40th Street New York City

Importers of Chemical Pulps
BLEACHED AND UNBLEACHED

Agents for Kellner Partington Paper Pulp Co., Ltd.
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The Pulp and Paper Trading Co.
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J. & J. Rogers Company, Ausable Forks, N. Y.
E. B. Eddy Company, Ltd., Hull, Canada
Canadian Kraft Limited, Three Rivers, Canada
Dealers in Wayagamack Kraft Pulp
Howard Smith Paper Mills, Montreal, Quebec
EASTERN AGENTS of Sulphite Pulp. Made by
Port Huron Sulphite & Paper Co., Port Huron, Mich.

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Natrona Porous Alum
Pennsylvania Salt Mfg. Company
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Western Paper Makers Chemical Company
Paper Makers Chemical Company
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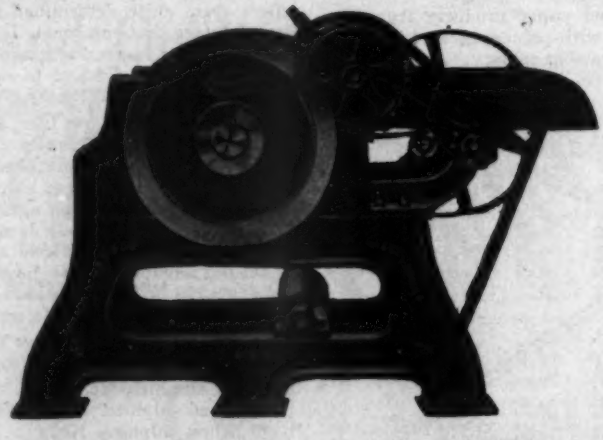

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452 bls. from Hamburg; E. M. Sergeant Co., 1,257 bls. from Oslo and 2,606 Gothenburg; Johaneson, Wales & Sparre, 6,804 bls. from Hernosand, 36 Copenhagen and 186 Hamburg; Tidewater Paper Mills Co., 24,090 bls. ground wood from Liverpool, N. S.; M. Gottesman & Co., 4,800 bls. from Sebenico; Kelly & Co., 7,855 bls. ground wood from Port Medway, N. S.; Golman, Sachs & Co., 400 bls. from Hamburg; Central Union Trust Co., 500 bls. from Hamburg; E. J. Keller Co., 724 bls. from Hamburg; Order, 5,461 bls. from Kotka, 898 Raumo, 1,160 Oslo, 1,360 Hamburg and 980 Trieste.

Paper Stock

There has been a little falling off of imports of papermaking materials other than wood pulp into the United States during the last couple of weeks. However, arrivals during the month of March were, on the whole, comparatively large. Rags continued to come in regularly in big tonnage, and old rope receipts were a little larger than usual. Imports of all kinds of papermaking stock through the port of New York in March, with names of consignees, were as follows:

Old Rope

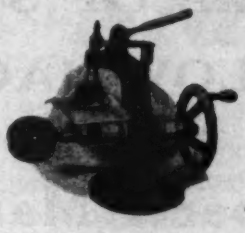
Brown Bros. & Co., 812 coils and 238 bls. from Hull, 183 coils and 6 bls. Newcastle, 263 bls. and 208 coils Rotterdam, 135 coils Hamburg, 725 coils Bristol, 286 bls. Antwerp, 38 coils Oslo and 113 bls. Swansea; Whaling Waste Products Co., 41 bls. from Rotterdam; Ellerman's Wilson Line, 229 coils from London and 39 coils and 26 bls. Hull; W. Schall & Co., 105 coils and 7 bls. from Hamburg, 39 bls. Barcelona and 63 coils Newcastle; I. L. Vandiver & Co., 109 coils from Hamburg; W. H. Cummings & Son, 175 bls. from Havre; Montell & McDonough, 5 bls. from Nassau; Chemical National Bank, 72 coils from Rotterdam; International Purchasing Co., 34 coils from Hamburg and 49 coils Rotterdam; S. Birkenstein & Sons, 64 bls. from Bergen; United Fibre Co., 51 coils from Hong Kong; William Steck & Co., 37 bls. from Rotterdam; G. M. Graves Co., 65 bls. from London; Order, 48 bls. and 4 coils from Bremen and 229 coils Copenhagen.

Old Bagging

S. Birkenstein & Sons, 92 lbs. Antwerp and 93 Havre; E. Butterworth & Co., 66 bls. Antwerp, 147 Alexandria, 63 Rotterdam and 180 Barcelona; Daniel M. Hicks, Inc., 52 bls. Havre; G. M. Graves & Co., 3,500 bls. Southampton and 379 Rotterdam; E. J. Keller Co., 699 bls. Rotterdam, 45 Manchester, 55 Antwerp, 522 St. Nazaire, 291 Havre, 103 Amsterdam, 284 Hamburg, 147 Marseilles and 56 Barcelona; Amsinck, Sonne & Co., 150 bls. Alexandria; International Acceptance Bank, 54 bls. Havre; National City Bank, 283 bls. Havre; Robert Blank, 155 bls. Rotterdam; Equitable Trust Co., 84 bls. Rotterdam; Castle & Overton, 82 bls. Rotterdam and 108 Barcelona; Anglo-South American Trust Co., 34 bls. Antwerp and 35 Barcelona; British Bank of South America, 94 bls. Manchester; Grace National Bank, 72 bls. Manchester; Mechanics & Metals National Bank, 88 bls. Manchester; U. S. Mortgage & Trust Co., 226 bls. Marseilles; J. B. Moors & Co., 88 bls. London; Order, 172 bls. Buenos Aires, 226 Hamburg, 36 London, 41 Antwerp and 123 Manchester.

Rags

Katzenstein & Keene, 120 bls. Hull, 420 Antwerp, 728 Barcelona, 187 Dunkirk and 149 Hamburg; S. Birkenstein & Sons, 650 bls. Rotterdam, 337 Antwerp, 77 Dublin, 154 London and 38 Hull; E. J. Keller Co., 2,185 bls. Rotterdam, 37 Antwerp, 648 Havre, 142 Dunkirk, 137 London, 264 Hamburg, 968 St. Nazaire, 143 Bordeaux, 92 Barcelona, 674 Algiers, 409 Marseilles, 680 Kobe, 306 Bremen and 266 Amsterdam; American Wool Stock Co., 62 bls. Rotterdam; Castle & Overton, 275 bls. Rotterdam and 173 Dunkirk; Reis & Co., 98 bls. Rotterdam; S. Green, 12 bls. Santiago; Stone Bros. Co., 138 bls. Naples, 28 Havre, 98 Hamburg, 57 Rotterdam, 70 Liverpool and 57 Bremen; G. M. Graves Co., 77 bls. London; Salomon Bros. & Co., 116 bls. Alexandria; Atterbury & McKelvey, 102 bls. Rotterdam, 174 Havre and 44 Barcelona; George W. Millar & Co., 175 bls. Barcelona; William Steck & Co., 74 bls. Barcelona; L. H. Abenheimer, 30 bls. Marseilles, 78 Havre and 95 Barcelona; G. Carrizzo, 61 bls. Leghorn; Atlas Waste Mfg. Co., 237 bls. Rotterdam; Maurice O'Meara Co., 192 bls. Rotterdam;



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Silicate of soda helps to retain and cement short fibres in the sheet. Ask us what kind and how.

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Perforated Metal Screens for Pulp and Paper Mills

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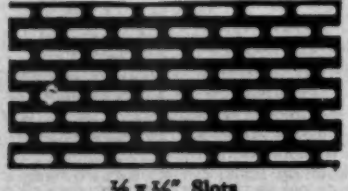

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Darmstadt, Scott & Courtney, 94 bls. Havre; Harris Bros., 7 bls. Havre; J. M. Jaffe, 123 bls. Bordeaux; Paul Berlowitz, 202 bls. Antwerp and 104 Rotterdam; L. Sher & Sons Co., 22 bls. London and 307 Rotterdam; J. Cohen & Sons Co., 42 bls. London; Victor Galaup, 39 bls. Leghorn; National City Bank, 343 bls. Naples, 70 Leghorn, 731 London, 50 Bremen, 1,099 Hamburg, 249 Copenhagen, 61 Marseilles, 70 Manchester, 173 Genoa and 142 Newcastle; Mechanics & Metals National Bank, 80 bls. Newcastle, 493 Algiers, 316 Antwerp, 56 Havre, 24 Hamburg and 108 Liverpool; Union National Bank of Philadelphia, 302 bls. Newcastle, 45 Hamburg and 93 Naples; Manufacturers Trust Co., 54 bls. Leith, 181 Naples, 111 Leghorn, 574 Antwerp, 314 Hamburg and 38 Rotterdam; Bankers Trust Co., 150 bls. Naples, 95 Konigsberg and 60 Trieste; Philadelphia National Bank, 42 bls. Antwerp and 68 Alexandria; Equitable Trust Co., 317 bls. Bremen, 197 Hamburg and 56 Havre; Guaranty Trust Co., 306 bls. Bremen, 350 Marseilles and 119 Constantinople; Banque Belge, 362 bls. Bremen and 20 Rotterdam; American Exchange National Bank, 195 bls. Bremen, 40 Belfast and 56 London; State Bank, 446 bls. Constantinople, 299 Bremen and 145 Hamburg; Anglo-South American Trust Co., 220 bls. Buenos Aires, 54 Havre, 59 Manchester and 103 Barcelona; Chemical National Bank, 330 bls. Rotterdam and 40 Hamburg; Irving Bank-Columbia Trust Co., 160 bls. Constantinople, 406 Hamburg, 26 Marseilles and 47 London; Paterson National Bank, 20 bls. Hamburg; Chatham & Phenix National Bank, 10 bls. Dublin; New York Trust Co., 91 bls. Barcelona; Garfield National Bank, 20 bls. Hamburg; Atlantic Exchange Bank & Trust Co., 70 bls. Bordeaux and 34 Marseilles; International Acceptance Bank, 253 bls. St. Nazaire, 107 Naples and 147 Marseilles; U. S. Mortgage & Trust Co., 422 bls. Rotterdam; British Bank of South America, 109 bls. Manchester; Cosmopolitan Shipping Co., 56 bls. Havre; Brown Bros. & Co., 92 bls. Newcastle, 34 Southampton, 144 Hamburg, 51 Manchester, 29 Glasgow and 48 Marseilles; Amsinck, Sonne & Co., 206 bls. Leith and 186 Alexandria; A. W. Fenton, Inc., 85 bls. Alexandria, 248 Dublin, 20 Leghorn, 391 Hamburg, 50 Palermo, 105 Bremen, 117 Rotterdam and 218 Cardiff; Bank of the Manhattan Co., 77 lbs. Hamburg; Baltimore Trust Co., 187 bls. Bordeaux and 50 Bremen; First National Bank of Boston, 72 bls. Hamburg; Lewin, Mushowski & Co., 120 bls. Hamburg; M. Fishbein & Co., 12 bls. Hamburg; Ladenburg, Thalman & Co., 55 bls. Hamburg; G. W. Sheldon & Co., 50 bls. Havre; J. B. Moors & Co., 75 bls. Antwerp; W. Schall & Co., 61 bls. Rio de Janeiro; Order, 107 bls. Naples, 151 Southampton, 128 London, 140 Alexandria, 295 Oran, 497 Hamburg, 58 Belfast, 38 Copenhagen, 103 Antwerp, 81 Leghorn, 183 Manchester, 30 Liverpool and 168 Bremen.

Miscellaneous Paper Stock

Brown Bros. & Co., 235 bls. Glasgow; Anglo-South American Trust Co., 49 bls. Glasgow; Whaling Waste Products Co., 182 bls. Havre and 78 Antwerp; National City Bank, 79 bls. Bremen, 229 Hamburg and 66 Leith; Daniel M. Hicks, Inc., 88 bls. Genoa; W. Schall & Co., 36 bls. Antwerp; National Bank of Commerce, 176 bls. Havre; American Exchange National Bank, 66 bls. Havre; Equitable Trust Co., 36 bls. Havre and 52 Hamburg; Banque Belge, 92 bls. Havre; Mechanics & Metals National Bank, 27 bls. Havre; E. Butterworth & Co., 119 bls. Dublin and 160 Rotterdam; Guaranty Trust Co., 47 bls. Dublin; Furness, Withy & Co., 168 bls. Belfast; Baring Bros. & Co., 79 bls. Dublin and 12 Manchester; C. Braendlic, 452 bls. Antwerp; C. R. Spence & Co., 19 bls. Gothenburg; U. S. Mortgage & Trust Co., 81 bls. Hamburg; Order, 95 bls. Genoa, 698 Liverpool, 303 Hamburg, 95 London, 60 Nassau, 90 Bristol and 100 New Westminster.

Paper

Probably the feature of the importations of paper into the United States through the port of New York during March was the increase in wrapping paper arrivals over the several previous months. Steamers from Swedish ports carried some large consignments of kraft wrapping, and there were also some shipments received from Germany. Imports of printing paper were fairly large, while normal amounts of cigarette, hanging, filter and other kinds of paper were received. Im-

Starch

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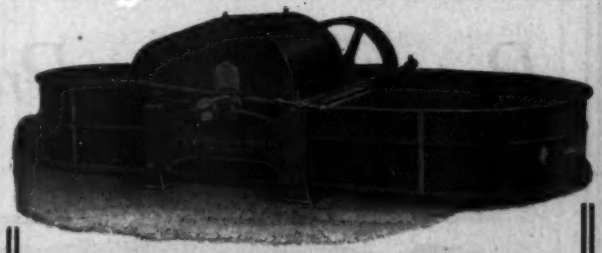
Starch



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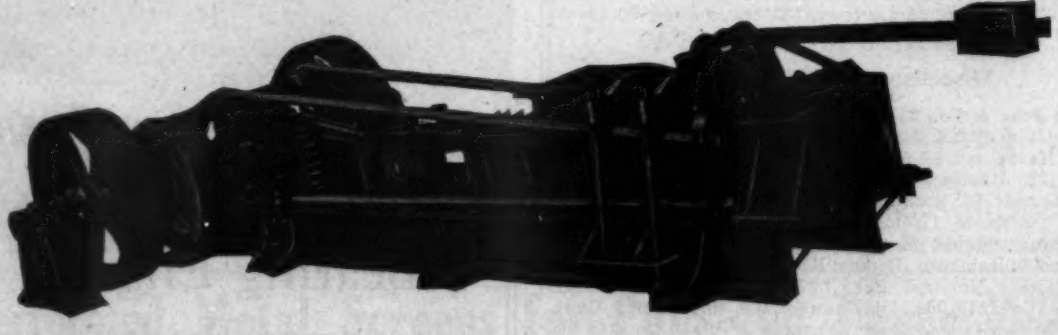

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GIANT NEKOOSA BARK PRESS

Prepares Bark for Fuel 52 Per Cent Dry

NEKOOSA MOTOR & MACHINE CO., Nekoosa, Wis.

ports of paper of all kinds through the port of New York in March follow, these data being taken from the manifests of vessels reaching that port during the month:

Printing

Oxford University Press, 13 cs. Liverpool; B. F. Drakenfeld & Co., 60 cs. Liverpool; Perry, Ryer & Co., 331 cs. Glasgow; F. C. Strype, 31 cs. Rotterdam; Maurice O'Meara Co., 38 cs. Bremen; North German Lloyd, 121 rolls Bremen; Irving Bank-Columbia Trust Co., 1,114 rolls Hamburg and 762 rolls Bremen; J. P. Heffernan Paper Co., 735 rolls Hamburg and 394 rolls Trieste; Drinkhansen & Hollkott Paper Co., 68 bls. Hamburg and 244 rolls Rotterdam; W. Hartmann & Co., 173 bls. Hamburg; Fourth & First National Bank of Nashville, 304 rolls Hamburg; P. C. Zuhlke, 423 cs. Antwerp; Keuffel & Esser Co., 181 cs. Hamburg and 16 rolls Hamburg; Globe Shipping Co., 12 cs. Rotterdam; C. Steiner, 32 cs. Rotterdam; Keferstein & Demonet, 177 rolls Trieste and 15 cs. Hamburg; Manufacturers Trust Co., 528 bls. Trieste; Hudson Trading Co., 322 rolls Hamburg; Schenkers, Inc., 86 bls. Trieste; Parsons & Whittemore, 34 bls. Hamburg; New York & Hauseatic Corp., 92 rolls Hamburg; P. Puttmann, 30 cs. Antwerp; Chemical National Bank, 31 rolls Hamburg; Order, 21 cs. and 1,637 rolls Kotka, 73 bls. Raumo, 631 rolls Oslo, 467 rolls and 44 bls. Copenhagen, 258 cs. and 1,236 rolls Bremen, 4 cs. Southampton, 196 bls. Hamburg and 22 cs. Antwerp.

Wrapping

J. P. Heffernan Paper Co., 1,159 bls. and 1,067 rolls Hamburg and 197 bls. Gothenburg; F. L. Kraemer & Co., 7 cs. Antwerp; F. C. Strype, 16 cs. and 9 rolls Antwerp and 26 cs. Rotterdam; Bendix Paper Co., 7 cs. Hamburg; Bank of America, 40 bls. and 424 rolls Hamburg; Blauvelt-Wiley Paper Mfg. Co., 15 bls. Glasgow; Stewart, Hartshorn Co., 94 rolls Glasgow; Merchants Products Corp., 186 bls. Bremen; Manufacturers Trust Co., 5 bls. Oslo; C. K. MacAlpin & Co., 268 bls. and 51 rolls Gothenburg; Borregaard Co., 1,350 rolls and 532 bls. Gothenburg; Arkell Safety Bag Co., 690 rolls Gothenburg; Thomas Barrett & Son, 20 bls. Gothenburg; International Forwarding Co., 20 cs. Hamburg; Birn & Wachenheim, 22 cs. Rotterdam; Chemical National Bank, 222 rolls Rotterdam and 77 bls. Hamburg; British-American Tobacco Co., 72 rolls Antwerp; International Acceptance Bank, 50 bls. Copenhagen; W. Schall & Co., 508 bls. Hamburg; Wilkinson Bros. & Co., 60 bls. Bergen, 1,406 rolls and 127 bls. Gothenburg; Republic Bag & Paper Co., 20 bls. Hamburg; Kirscheimer Bros., 52 rolls Gothenburg; Miller Paper Co., 508 rolls and 5 bls. Gothenburg; C. G. Winans & Co., 1,077 rolls and 52 bls. Gothenburg; Crepe-Kraft Co., 39 rolls and 5 bls. Gothenburg; Haas Bros., 12 rolls Gothenburg; Mugler & Umlauf, 322 rolls and 72 bls. Gothenburg; M. Gottesman & Co., 320 rolls Gothenburg; C. Steiner, 29 cs. Oslo; W. Hartmann & Co., 5 bls. Hamburg; Order, 5 cs. Southampton, 12 cs. and 1,492 bls. and 396 rolls Hamburg, and 25 bls. Rotterdam.

Cigarette

American Tobacco Co., 2,466 cs. Bordeaux; R. J. Reynolds Tobacco Co., 3,490 cs. St. Nazaire; DeManduit Paper Corp., 918 cs. St. Nazaire; Surbrug Co., 23 cs. Havre; F. P. Gaskell & Co., 20 cs. Havre; Erie R. R. Co., 20 cs. Barcelona; Standard Products Corp., 7 cs. Southampton and 64 cs. Havre; S. Gluckmann, 5 cs. Southampton; P. J. Schweitzer, 84 cs. Havre and 51 cs. Marseilles; M. Spiegel & Sons, 9 cs. Hamburg; Surbrug Co., 22 cs. Southampton.

Writing

F. C. Strype, 22 cs. Marseilles; E. Dietzgen & Co., 16 cs. Marseilles; P. Puttmann, 2 cs. Marseilles; Japan Paper Co., 15 cs. Havre; F. L. Kraemer & Co., 3 cs. London; Guibont Freres & Co., 8 cs. Southampton and 46 cs. Havre; A. Goodman & Co., 117 bls. Liverpool.

Drawing

Keuffel & Esser Co., 113 cs. Hamburg and 10 cs. London; F. C. Strype, 10 cs. Havre and 1 cs. Marseilles; E. Dietzgen & Co., 25 cs. Rotterdam; Devoe & Raynolds Co., 4 cs. London;

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Conveyor or Gravity Feed Shredder

THE operation of a beater, with its wear and tear and tremendous power consumption, has one primary purpose, namely, hydration. Anything that will economically bring about hydration more quickly relieves the beater just that much, cuts down on operating costs and speeds the process of paper making.

The Mitts & Merrill Shredder performs on magazines, books, old paper and boxboard, frozen or dried pulp laps, roll and sheet stock, in such a way as to greatly reduce their resistance to hydration when they reach the beater. It gives the beater an economical lift.

Our Shredders are built in sizes with spouts ranging from 18" to 45" wide. We will be glad to quote you on any size adapted to your requirements.

We also build a 100% efficient "Hog" to reduce pulp mill bark and wood refuse.

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Drum Winder Toilet Machine

THIS machine winds a hard roll. The winding shaft rotates between two drums. The slitters are located in one drum. Various lengths of collars can be furnished for the slitter drum to accommodate different lengths of rolls desired.

Two core shafts are furnished with each machine, also two back stand shafts for Jumbo Rolls. The machine is ball bearing throughout, including the drive pulley.

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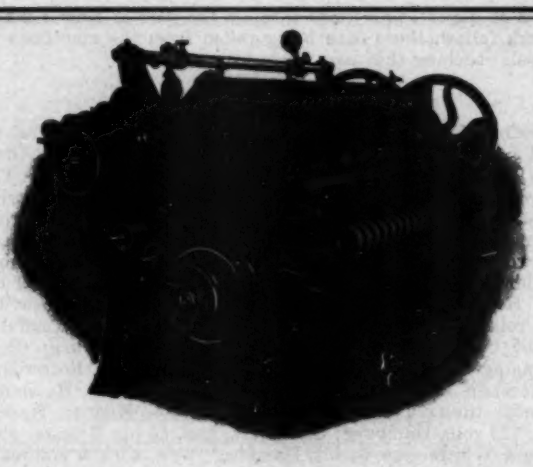

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Single, Duplex, and Diagonal

CUTTER KNIVES
PATENT TOP SLITTERS

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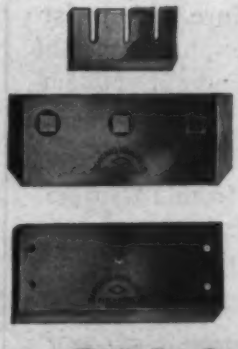
Barker & Chipper Knives



If your mill equipment includes Simonds Barker, Chipper and Paper Cutter Knives you are assured of a cutting service that will stand up. Made of Simonds' own steel these knives will give long service and withstand wear.

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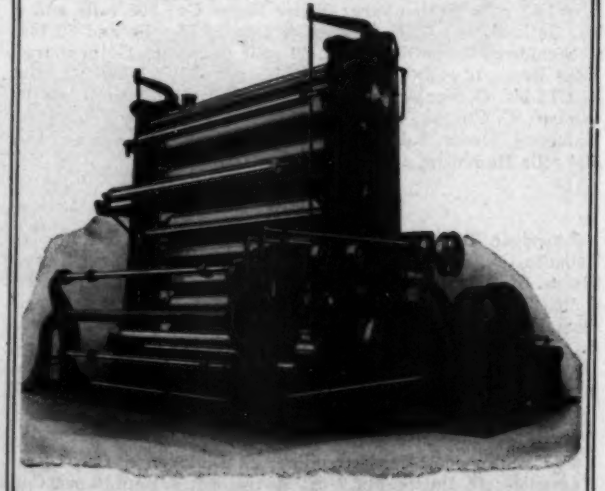
NORWOOD
SUPER CALENDERS



WE ARE SPECIALISTS IN
Paper Finishing Machinery

NORWOOD ENGINEERING CO.
FLORENCE, MASS., U. S. A.

H. Reeve Angel & Co., 10 cs. Southampton and 2 cs. London; Favor, Ruhl & Co., 3 cs. London.

Filter

J. Manheimer, 104 bls. Southampton; E. Fougera & Co., 218 cs. Southampton; H. Reeve Angel & Co., 27 cs. London and 54 cs. Bordeaux; Titan Shipping Co., 40 bls. Bordeaux; G. Lueders & Co., 5 cs. Havre; Zinkeisen & Co., 5 cs. Hamburg; Franco-American Import Corp., 80 cs. Bordeaux.

Tissue

Brooks Paper Co., 3 cs. Liverpool; Iwai & Co., 17 cs. Kobe; Baldwin Universal Co., 3 cs. Liverpool; Meadows, Wye & Co., 12 cs. Liverpool.

Photo

Globe Shipping Co., 593 cs. Bremen; Gevaert Co. of America, 116 cs. Antwerp; F. G. Prager & Co., 37 cs. Bremen; P. C. Zuhlke, 174 cs. Antwerp.

Hanging

A. C. Dodman, Jr., & Co., 58 bls. Liverpool and 36 cs. Southampton; T. J. Heinrich & Co., 3 bls. Liverpool; F. G. Prager & Co., 934 bls. Rotterdam; W. H. S. Lloyd & Co., 31 bls. Liverpool; F. J. Emmerich & Co., 61 bls. Hamburg, 9 bls. Southampton, 2 bls. Havre and 7 bls. Liverpool; Happel & McAvoy, 17 bls. Hamburg; R. F. Downing & Co., 19 bls. London and 42 bls. Kobe; C. A. Haynes & Co., 156 bls. London; Drinkhansen & Hollkott Paper Co., 354 bls. Antwerp; H. P. Houston & Co., 25 bls. Halifax.

Board

Adrian Vuyck, 1,099 rolls Rotterdam; Bendix Paper Co., 49 cs. Hamburg; Metropolitan Import & Mfg. Co., 154 cs. Hamburg; Hensel, Bruckmann & Lorbacher, 8 cs. Havre; Parsons & Whittemore, 2 rolls Raumo; O. M. Baxter, Inc., 37 cs. Gothenburg; Friedman & Co., 13 cs. Hamburg; Banograph Co., 4 cs. Havre; Order, 53 rolls Copenhagen.

Miscellaneous

Japan Paper Co., 99 cs. Genoa and 3 cs. Havre; Ault & Wiborg Co., 102 cs. Hong Kong; Whiting-Patterson Co., 132 cs. Southampton; American Express Co., 5 cs. Southampton; F. G. Praeger & Co., 60 cs. Hamburg; P. H. Petry & Co., 56 cs. Hamburg; Bendix Paper Co., 8 cs. Hamburg; Dupont Cellophane Co., 6 cs. Havre; Coenca-Morrison Co., 13 cs. Havre; Atlantic Forwarding Co., 5 cs. Hamburg; M. Winter, 4cs. Hamburg; Davies, Turner & Co., 3 cs. Danzig; F. C. Strype, 5 cs. Rotterdam; S. Gilbert, 9 cs. Rotterdam; Hensel, Bruckmann & Lorbacher, 5 cs. Rotterdam; Perry, Ryer & Co., 12 cs. Bremen; American Merchant Lines, 25 bls. London; Bernard, Judae & Co., 8cs. Gothenburg; F. J. Kraemer & Co., 6 cs. Bremen; F. Henjes, Jr., 51 cs. Bremen; Jacob & Valentine, 8 cs. Hamburg; Borden & Riley Paper Co., 23 cs. Antwerp; Louis DeJonge Co., 111 cs. Antwerp; Rubberoid Co., 90 rolls Rotterdam; Morrison Machine Co., 28 cs. Havre; Phoenix Shipping Co., 5cs. Bremen; A. Flinn & Co., 8 cs. Havre; M. Bechtold, 25 cs. Hong Kong; Cordillers Commission Co., 51 bls. Hamburg; J. W. Banker, 18 bls. Gothenburg.

Foreign Trade Opportunities

Additional information regarding the following foreign trade opportunities issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce may be obtained from the Bureau in Washington, D. C., or its branch offices. It is requested that the number of the inquiry be given at all times.

No. 13893—Photographic printing papers and folders. Alexandria, Egypt. Agency desired.

No. 13943—Waxed paper. Shanghai, China. Purchase desired.

No. 13942—Wrapping paper and paper bags. Port au Prince, Haiti. Agency desired.

No. 14063—Paper boxes. Puerto Cortes, Honduras. Purchase desired.

No. 14112—Paper containers, paraffin, for jam and jellies. Antwerp, Belgium. Purchase desired.

No. 14069—Paper, all kinds, including cigarette paper and cardboard. Alexandria, Egypt. Agency desired.

No. 14113—Paper for manufacturing bag liners. Robertsau, France. Purchase and agency desired.

WAUSAU SULPHATE FIBRE CO.
MOSINEE, WISCONSIN
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Cut down *excessive* wrapping paper investment. Why carry two wrapping paper lines for one wrapping paper *purpose?*

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presents a perfect wrapping paper, weight and strength for each wrapping purpose. Made in all weights from 15 pounds to 100 pounds basis. The one complete, standardized and economical line of wrapping paper sold.

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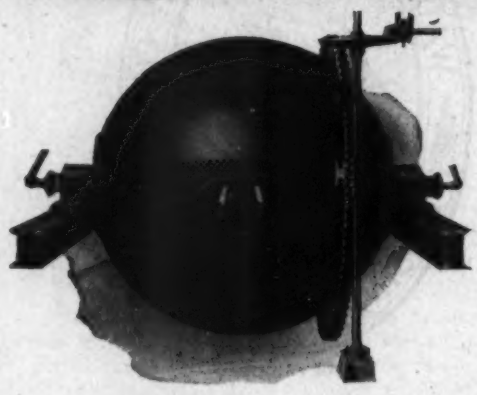
"The Wrapper that Delivers the Goods"

The Biggs Boiler Works Co. Akron Ohio

GLOBE and CYLINDER

ROTARY BLEACHING BOILERS

for Years of Dependable Cooking and Bleaching



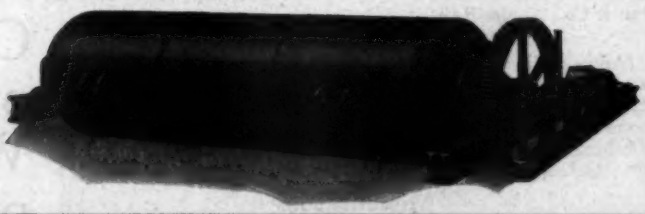
Globe and Cylinder Rotary Bleaching Boilers
Digesters
Riveted Steel Tanks
Flumes, Smokestacks, Penstocks, General Steel Plate Construction of every description

ROTARY BOILERS are not the kind of equipment that you buy with a view to scrapping it in a few years on account of wearing out or new methods rendering it obsolete.
In these days of rapid and revolutionary changes in almost every industry, you can take real satisfaction in knowing that this part of your equipment at least will keep on paying dividends long after you have written it off the books.

We have been supplying globe and cylinder rotary boilers for cooking and bleaching paper stocks since the 80's. Our old customers keep coming back to us, so it's only natural that we should keep adding new ones.

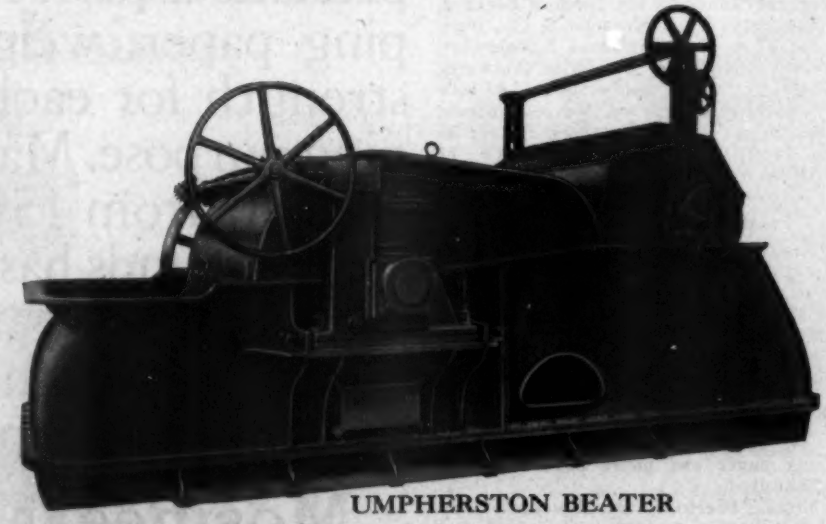
When you need this class of equipment, the best course is to get in touch with Biggs.

The Biggs Boiler Works Company
Seneca Place and Case Ave. Akron, Ohio
Eastern Representative: Mr. Grenville A. Harris, 15 Park Row, New York City



Holyoke Machine Co., Holyoke, Mass.

Makers of Improved Machinery for Wood Pulp and Paper Mills



UMPHERSTON BEATER

Washing and Beating Engines, Wood Pulp Grinders, Barkers, Chippers, Rag and Paper Dusters, Rag Cutters, Hydraulic Pumps and Presses, Hercules Water Wheels and Governors, Super-Calenders, Platers, Cotton and Paper Rolls.